

2020-2023

University of Worcester Biodiversity Strategy



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1. Context

This Strategy outlines how the University intends to meet its Sustainability Policy commitment and the UN Sustainable Development Goal for biodiversity.

The University of Worcester Sustainability Policy, 2019 commits to:

‘Enhance biodiversity and incorporate biodiversity in environmental management, creating new opportunities for wildlife on campus wherever possible’

Alongside its Sustainability Policy the University of Worcester is working across campus, community and curriculum to deliver the UN's Global Sustainable Development Goals.

The UN Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all with goals covering a wide range of global challenges. Goal 15 specifically related to biodiversity on campus; Life on Land – To Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss by 2030.

The University has already made good progress in implementing its Policy commitment and the Sustainable Development Goal in relation to biodiversity. A Biodiversity Action Plan has been in place since 2008. This is regularly updated by the Strategic Biodiversity Management Group (SBMG) and implements the commitments set out in the Biodiversity Strategy as part of the University's ISO14001 Environmental Management System. A full review of the Biodiversity Strategy and BAP is undertaken every 3 years.

The SBMG meets at least twice a year to implement the Biodiversity Strategy and BAP. This includes staff from the Sustainability Department, Academic Departments, Grounds Maintenance, students from the Nature Society and external organisations. This latest version of the Biodiversity Strategy covering 2019-2021 is intended to provide a framework to set targets in the BAP in the following areas:

- Legal compliance
- Protecting biodiversity
- Managing biodiversity
- Creating new habitats
- Managing invasive species
- Monitoring and data management
- Training, communication and partnerships
- Governance, review and reporting

The BAP priority for 2019-2021 is to create new habitats on the University campuses whilst also continuing to manage and improve existing biodiversity areas and features. The University will seek funding for these projects through initiatives such as Natural Networks Programme and local funds available from groups such as the RSPB.

Between 2020-2022 greater synergies will be also be sought with the Worcestershire Biodiversity Action. The 2018-2027 Worcestershire Biodiversity Action Plan (BAP) identifies 17 habitats and 26 species, or species groups, which are of particular conservation priority in the county. The University is part of the Worcestershire Biodiversity Partnership that includes local government, statutory, voluntary and public bodies committed to working together to deliver the BAP.

2. Why conserve biodiversity?

Biodiversity is a term used to describe the variety of all life forms on earth. It includes habitats, species and the interactions between them. Human activity has always had an impact on the natural world and its biodiversity. This has increased exponentially throughout the 20th and 21st century and now we are experiencing widespread reduction in the extent and quality of natural habitats and the number of species that depend on them. 'The State of Nature' report published in 2016 found that 56% of UK species are in decline and 165 species are considered Critically Endangered in Great Britain, i.e. the most likely to go extinct.

On a global scale there is intrinsic recognition of the value and importance of biodiversity, not just for its own sake but also to provide us with 'ecosystem services' such as raw materials, food, clean water and air. Time spent relaxing and exercising in nature has also been proven to have a significantly positive effect on health and well-being.

Although this is widely recognised, the United Nations Environment Programme (UNEP) acknowledges that '*Despite numerous government pledges, biodiversity loss is accelerating in all regions of the world.*'

In 2019 the United Nations reported that ‘Humans threaten 1 million species with extinction’¹. Great efforts and many successes have been made but a cultural shift is still needed to address the global biodiversity crisis.

The University is committed to meeting the UN Sustainable Develop Goals that include biodiversity. Alongside this the University has a role to play in implementing the targets of The UK Government’s Natural Environment Strategy ‘A Green Future: Our 25 Year Plan to Improve the Environment’, 2018. This aims to aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species and provide richer wildlife habitats. It includes a commitment to publish a new Biodiversity Strategy to build on the current ‘Biodiversity 2020’ Strategy that set the vision to halt the loss of biodiversity in England by 2020.

We still have significant work to do to halt and reverse the loss of biodiversity but all sectors of society must play its part in achieving this vision before this aspiration moves ever further into the future with more of our valuable natural heritage lost. The Further and Higher Education Sector has an important contribution to make. The Sector not only occupies an area of land equivalent in size to the Isle of Wight but its partnerships extend well beyond campus boundaries. The sector also has the ability to influence future leaders in making biodiversity an integral part of business and society so that we can address and reverse the decline of biodiversity on a national scale.

The University of Worcester has a legal obligation to conserve biodiversity and has made policy and Environment Management System commitments accordingly. The Natural England and Rural Communities Act (2006) requires all UK public bodies to have regard for the conservation of biodiversity; this includes institutions of higher education.

In March 2018, the House of Lords Select Committee on the Natural Environment and Rural Communities Act 2006 published its Report of Sessions 2017-19 ‘*Is the Natural Environment and Rural Communities Act 2006 still fit for purpose?*’. This recommended that the NERC Act should be amended in order to add a reporting requirement to the public body duty and that the Government should also consider strengthening the wording.

¹ Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) <https://www.ipbes.net/news/Media-Release-Global-Assessment>

3. Business Case

Managing biodiversity on campus has a compelling business case. The EAUC Biodiversity Guide considers the following factors:

Campus planning and development – new developments may be required to consider biodiversity, especially if they are to achieve BREEAM construction standards. Incorporating biodiversity into new build projects can also assist the success of planning applications.

Legal compliance – there is extensive legislation and regulation relating to biodiversity that Universities must consider.

Reputation and image – Biodiversity projects are a key element of demonstrating that an organisation takes a sustainable approach to operations. Sustainability enhances the reputation of an organisation and is also required to achieve sustainability accreditation and awards.

Financial – Reduced intervention grounds maintenance saves money and operations for biodiversity can attract government grants. Incorporating natural features into campus developments can also reduce costs in the long term.

Sustainability in the curriculum – biodiversity initiatives are a fundamental resource to ecology, biology, geography and environmental studies projects and to embedding sustainability in the curriculum.

Healthy living and well-being – There is a wide body of evidence to say that green spaces can help improve physical and psychological health. A biodiverse campus creates a healthy working and studying environment.

People and partnership – Biodiversity projects are an excellent way of forming partnerships within universities and within the local community.

Volunteering opportunities – Biodiversity projects offer valuable opportunities for students to gain work experience and to gain a sense of contribution to their University.

Wider environmental benefits – Biodiversity projects contribute to carbon management objectives. Green areas reduce the amount of carbon dioxide (CO₂) in the atmosphere through a process called carbon sequestration. Green spaces also reduce drainage needs.

4. Legislation and Regulation

The following information provides a brief summary of the key items of legislation and regulation that the University needs to comply with concerning biodiversity and grounds management. It does not constitute legal advice. Specialist advice and further sources of information will be consulted by the University.

Further detail on legislation and regulation can be found within the EAUC Biodiversity Guide at www.sustainabilityexchange.ac.uk/eauc_biodiversity_guide

The primary source of information that will inform practices at the University of Worcester can be found at www.legislation.gov.uk

The Wildlife and Countryside Act 1981 (as amended)

Birds, animals and plants are protected from damage, injury, interference and other forms of harm. Measures are included to prevent the establishment of non-native species which may be detrimental to native wildlife, such as Japanese Knotweed. The Act is relevant to grounds maintenance, conservation, construction work and in the requirement to prevent damage to bird's nests, bat roosts and habitat of protected species such as great crested newts.

Forestry Act, 1967

A felling licence may be required to fell growing trees. The requirement is based on factors such as location, volume and diameter of the tree/s, the type of tree work, planning permission and circumstances of nuisance, danger or tree disease.

The Badgers Act 1991 and Protection of Badgers Act 1992

It is illegal to kill or harm badgers or disturb their setts unless a license has been granted.

Natural Environment and Rural Communities Act 2006

The NERC Act requires public bodies, including Universities, to “have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”.

Hedgerow Regulations 1997

The removal of 'important' hedgerows is prohibited without having been granted with a Hedgerow Removal Notice.

The Environmental Damage (Prevention and Remediation) Regulations 2009

The Regulations act to prevent and repair damage to water systems, land quality, species and their habitats and protected sites from a range of activities that cause a risk of 'significant' damage or cause 'significant' damage to land, water or biodiversity.

Environmental Permitting (England and Wales) Regulations 2010 and Water Resources Act 1991

Under these Regulations it is an offence, without a relevant Permit, 'to cause or knowingly permit any poisonous, noxious or polluting matter or any solid waste matter to enter any controlled waters, to cause or knowingly permit any trade effluent or sewage effluent to be discharged from a building or from any fixed plant onto or into any land; or into any waters of a lake or pond which are not inland freshwaters.'

These Regulations should be considered when undertaking construction works, waste storage, landscaping and vehicle washing.

The Town and Country (Tree Preservation) (England) Regulations 2012 and The Town and Country Planning (Trees) Regulations 1999

Under these Regulations, trees can be protected through a Tree Preservation Order (TPO). A TPO aims to protect single trees, including veteran trees, or groups of trees from deliberate damage or removal. Trees with TPO's on campus are protected and permission is required before maintenance work can be carried out on them.

5. Habitats and Species at the University of Worcester

5.1 The University of Worcester

During its first sixty years, the University occupied a single site, the St John's campus. Since being awarded full university status in 2005 the University has undergone a period of significant growth and has more than doubled its student numbers. At the same time it has invested significantly to increase and improve its infrastructure and facilities, acquiring a number of major development sites.

The University continues to grow and develop under its growth Strategy. The University now operates 4 campuses:

- St John's Campus
- City Campus
- Severn Campus
- Lakeside Campus

The University also has potential growth at the following sites:

- University Park
- University Court

The University has smaller satellite playing field sites:

- Battenhall Playing Fields
- The Moors Playing Field



The three main campuses of the University of Worcester.

5.2 St John's Campus

St John's Campus occupies 16.41 ha of land to the east of Worcester City Centre. The campus infrastructure consists of educational, social and residential facilities embedded into a leafy parkland arrangement. The landscape is predominantly hard surfaces, such as buildings, roads and car parks which are interspersed by formal planted areas, trees, grassed areas and informally managed areas.



The campus includes a wide variety of trees and an extensive hedgerow network. Trees are classified by arboriculture surveys according to their rarity, ecological importance, landscape value, cultural significance and potential remaining lifespan. Some trees on campus are subject to Tree Preservation Orders (TPO's). TPOs prevent the removal, topping, lopping and wilful damage or destruction of protected trees. The University has a tree management policy agreed in October 2007.

Trees onsite include:

- Black Mulberry (*Morus nigra*)
- Pedunculate Oak (*Quercus robur*)
- Black Pine (*Pinus nigra*)
- Wild Cherry (*Prunus avium*)
- Beech (*Fagus sylvatica*)
- Coast Redwood (*Sequoia Sempervirens*)
- Atlas Cedar (*Cedrus atlantica*)
- Douglas Fir (*Pseudotsuga menziesii*)
- Common Yew (*Taxus baccata*)
- London Plane (*Platanus acerifolia*)
- Lime (*Tilia platyphyllos*)

Hedgerow species include:

- Hazel (*Corylus avellana*)
- Hawthorn (*Crataegus monogyna*)
- Guelder rose (*Viburnum opulus*)
- Wayfaring tree (*Viburnum lantana*)
- Dogwood (*Cornus sanguinea*)

There are two ponds within the St John's Campus grounds that provide habitats for local wildlife. They contain a variety of marginal, submerged and floating plant species, invertebrates and amphibians. An annual programme of maintenance is undertaken to maintain and enhance its conservation value.

A conservation area is established on the campus alongside a wildflower area with interpretation board. The conservation area has been sown with wildflower seeds and plugs and includes habitat log piles and a hedgerow that is now matured and will be managed through 'laying' to improve its structure and habitat value.

The campus includes an area known as the 'Secret Garden', and other more secluded parts which contain a variety of fruit trees, 'insect hotels', log piles and compost heaps. There are also opportunities for students and staff to grow their own food on campus allotments.

A Phase 1 Habitat Survey identified a Badger (*Meles meles*) sett within the boundaries of St John's Campus. As of 2019, Badgers are still evident on the campus and arrangements are in place to protect Badgers and their habitat in line with legal requirements.

5.3 City Campus

City Campus, including The Hive is located within the centre of Worcester on the site of the former Royal Infirmary. It is an urban mosaic comprising of buildings, large areas of hard-standing, improved grassland and a variety of landscaped areas.



The main City Campus site is urban in nature and currently provides limited opportunities for biodiversity. It does however include a variety of mature standard trees and hedgerows, which contain a rich assemblage of native species. These features provide valuable opportunities for foraging, nesting, roosting and shelter for a wide range of animals and are particularly important in the urban environment.

Sustainability has been central to the design of The Hive. Over 4000m² of the soft landscape at the site are dedicated to enhancing biodiversity. These habitats are complemented by a number of innovative wildlife features to provide bird nesting, bat roosting and stag beetle hibernacula opportunities. The landscape provides for interaction between people and wildlife through proximity, interpretation and interactive features.

5.4 Severn Campus

Situated between the St John's Campus and the City Campus, the Severn Campus is home to the University Arena, the Riverside building and The Garage art studios, and a number of buildings due for demolition and refurbishment.



The campus is considered to currently have limited biodiversity value; being sparsely vegetated. The few ecological features consist of a small selection of planted ornamental shrubs and trees.

There is an active badger sett on the campus. As part of development plans the sett will be protected and the area that it is found in enhanced for biodiversity. Work will be undertaken in consultation with the Wildlife Trust.

A number of common bird species have been recorded on the site, including Blackbird (*Turdus merula*), Robin (*Erithacus rubecula*) and the RSPB 'amber status' Dunnock (*Prunella modularis*), although no nests have been found.

5.5 Lakeside Campus

The Lakeside Campus, purchased by the University in 2016, is a resource that focuses on sport, education and development within a natural outdoor environment across a 50 acre site. It includes an Education Centre with teaching and meeting facilities, a lake that is used for sailing kayaking and outdoor sports facilities.

The lake provides habitat for species such as ducks, swans and moorhen. Water quality management using physical or organic methods is in place to prevent overgrowth of vegetation such as algae.

In 2018, a Forest School and Bushcraft area was created including planning 450 trees. A Management Plan is in place to ensure to protect and enhance the areas as it develops.

The University is committed to ensuring that biodiversity improvement is a core development principle for the Lakeside Campus, alongside the campus development plans. This includes considering 'high impact' campus wide biodiversity projects and ongoing management plans.



Map of the Lakeside Campus, also showing the running track around the site.

5.6 University Park

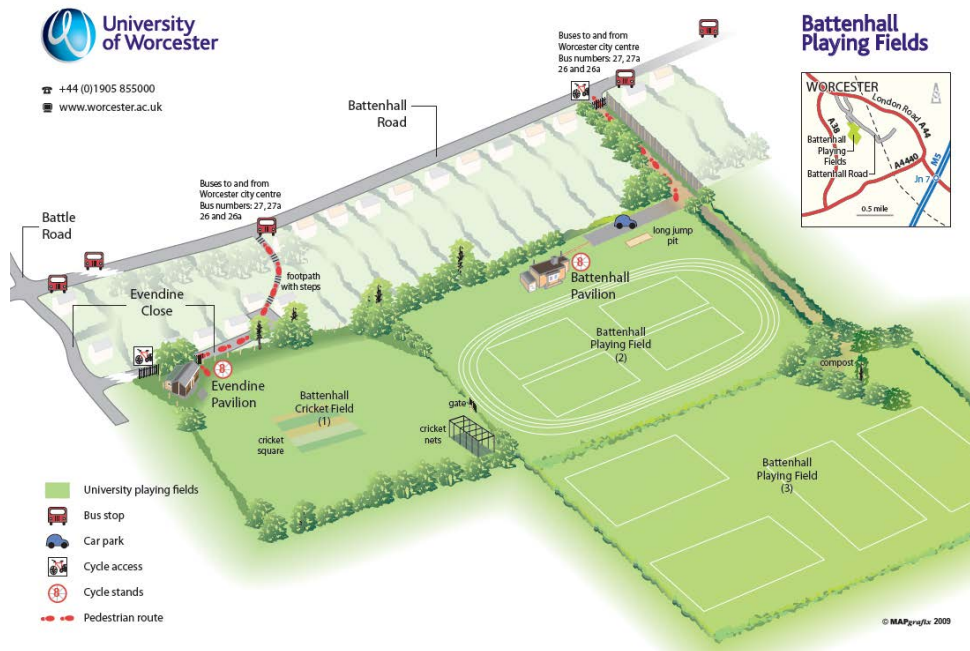
Located approximately 1.5 miles from St John's Campus, University Park is a 47 acre 'greenfield' site. Parts of this site have been developed by third parties, including a Doctors' surgery, supported housing and some infrastructure. It includes a reservoir, hedgerow and woodland areas. The University is currently considering future development plans for site and biodiversity will be considered as part of this.

University Park Masterplan: Aerial Photograph from the South



5.7 Battenhall Playing Fields

Battenhall playing fields are situated between Bath Road and Battenhall Road, Worcester. The Duck Brook water-body lies to the south-west of the site and it is accessible by a public footpath.



The Battenhall Playing Fields

The site is bordered by fences and dense, extensive hedges. The hedges are comprised mainly of Blackthorn (*Prunus spinosa*) and Hawthorn (*Crataegus monogyna*) although Elder (*Sambucus nigra*) and Bramble (*Rubus fruticosus*) have a significant presence. There are also two Pedunculate Oak (*Quercus robur*) standards. The site includes a large compost heap.

The dominant vegetation is improved grassland which contains species such as Rye-Grass (*Lolium perenne*) and Red Fescue (*Festuca rubra*) on the playing fields. False Oat Grass (*Arrhenatherum elatius*) and Yorkshire Fog (*Holcus lanatus*) dominate the grass mix closer to the paddocks. Common, widespread species are present such as Creeping and Spear Thistle (*Cirsium arvense* and *C. vulgare*) and there are patches of nettles (*Urtica dioica*) scattered around less well used areas of the site. Nearest the brook, a patch of wet grassland contains species such as Hard and Soft Rush (*Juncus inflexus* and *J. effusus*) and Tufted Hair Grass (*Deschampsia cespitosa*).

The site is considered to have the potential to support a variety of breeding birds. Many birds have been observed on the site including Starling (*Sturnus vulgaris*), Blackbird (*Turdus merula*), Blue tit (*Parus caeruleus*), Great tit (*Parus major*), Greenfinch (*Carduelis chloris*), Magpie (*Pica pica*) and Chaffinch (*Fringilla coelebs*). Arboriculture surveys have identified the most valuable tree specimens to be Beech (*Fagus sylvatica*), Horse Chestnut (*Aesculus hippocastanum*), Ash (*Fraxinus excelsior*) and Walnut (*Juglans regia*).

5.8 The Moors Playing Field

The Moors playing field is an 8.62ha area of land to the east of the River Severn. It is regularly inundated with flood water from the River Severn.



Location of the Moors Playing Field

The site is dominated by improved grassland and bordered by a variety of mature trees. The most valuable tree specimens are considered to be a number of high quality Lime (*Tilia sp.*) trees along with Small Leaved Lime (*Tilia platyphyllos*), Cherry (*Prunus sp.*) and Oak (*Quercus sp.*).

5.9 University Court

University Court has recently been purchased by the University as a development site for student Halls of Residence. The site has previously been used for arable agriculture and has some bordering hedgerows. The University is currently considering future development plans for site and biodiversity will be considered as part of this.



The University Court development site (left) in relation to the St John's Campus (right)

6. Protecting Biodiversity

As a priority, the University will protect its existing biodiversity features by undertaking surveys to ascertain the biodiversity value of each campus and site. Prior to any major redevelopment work on any of the university sites, the Capital Projects Team undertakes a project risk assessment including the assessment of biodiversity features. Any nationally or locally rare and protected habitats and species are given particular consideration. Where it is not possible to protect existing biodiversity features, as the campus develops, mitigation measures will be put in place. The University is committed to implementing BS 42020 - a code of practice for biodiversity in planning and development.

The University avoids the unnecessary removal of trees and specimens are protected, wherever possible. Mature trees and those protected by Tree Protection Orders are given particular consideration. The University will implement mitigation measures where trees must be removed and is committed to following BS 5837:2012 - Trees in relation to design, demolition and construction.

The University will only remove trees in the following circumstances:

- If they are creating a hazard to people.
- If they are damaging essential services.
- If they are growing in unsuitable areas; in close proximity to buildings or roads etc.
- When they need to be cleared for new development and no other option exists.

7. Managing Biodiversity

The University defines biodiversity management objectives in its Biodiversity Action Plan that are regularly reviewed and updated by the Strategic Biodiversity Management Group. This includes a summary of objectives that are distributed to relevant staff within the University including grounds maintenance staff.

7.1 Trees

The University has a documented Tree Policy which applies to all trees including those within boundary hedgerows, on all sites. The University also carries out regular tree surveys, to maintain the health and biodiversity value of all trees on their land. All tree management interventions are carried out by qualified persons, to a high standard.

On-going tree maintenance is carried out for the following reasons:

- To improve safety by removing damaged or weighty limbs
- To remove branches which have become in contact with buildings
- To improve shape
- To maintain the health of the tree
- To improve sight lines on corners or access routes
- To improve security

All tree management activities are carefully timed to occur outside the breeding season of bird species (early March to late August), wherever possible, to minimise the impact on breeding birds and other associated species. Where possible, deadwood is allowed to remain on trees to provide habitats for insects, if it does not cause a hazard to health and safety.

The University regularly identifies opportunities to plant new trees and undertake work to improve the biodiversity value of trees, such as coppicing, on their campuses for biodiversity and visual landscape value. For example, coppicing of hazel trees are undertaken on the St John's Campus on a three-year rotation and fruit trees within the 'Secret Garden' are managed according to a replanting scheme.

7.2 Hedgerows

The overarching aim of hedgerow management is to encourage a structurally diverse, gap free and dense assemblage of native species with good base cover in order to accommodate a wide range of species.

A winter trimming schedule is carried out on a 2-3 year rotational basis, to encourage structural diversity and to provide optimum berries, fruit and nesting opportunities. Hedgerow laying is undertaken to improve the structure and longevity of hedges. Opportunities are also sought to connect hedgerows and other vegetation patches by planting new hedges of native species.

Management exclusion zones are considered within hedgerow-to-grass boundary areas. In these areas mowing is restricted to an annual or biannual crop to create a structurally diverse and graduated zone where chemical fertilisers and herbicides are not applied.

All hedgerow management and basal grass mowing is carefully timed, wherever possible, to minimise the impact on breeding birds and other hedgerow species.

7.3 Lakes, Ponds and water bodies

The pond on the St John's Campus is managed according to a Pond Management Plan that aims to provide a visually attractive, quality habitat for various plants, freshwater invertebrates, insects, amphibians and birds. The pond is an important teaching resource especially for students in the Institutes of Science and Environment and Education.

Pond management activities are carefully timed throughout the year to minimise impact on biological features and increase biodiversity benefit. During the autumn, ponds are cleared of dead vegetation in a manner that protects invertebrates and amphibians. Netting is used to prevent excessive amounts of leaf litter falling onto the main pond on St John's Campus to prevent unwanted nutrient level increases and excessive debris within the water-body.

During spring, further clearance work is undertaken to maintain open access to the area as a teaching resource. New plants are introduced as appropriate and existing pond plants are reorganised to afford protection to breeding freshwater invertebrates and amphibians.

In summer, management activities focus on maintaining water levels and keeping the area clear of excessive vegetation to improve oxygen levels. Overgrown marginal plants are trimmed to afford continual accessibility for students and staff.

The University looks to increase biodiversity in the ponds through a variety of activities such as installing new planting, rock piles, corrugated sheeting, pond ledges and leaf piles.

7.4 Grassland

Grassland management needs to balance a variety of needs to maintain a good visual appearance and parkland design for the University, for sports and recreation and for biodiversity.

The University identifies suitable areas where mowing regimes can be altered to encourage species rich grassland to develop. Rotational hay meadow mowing regimes with no chemical inputs are put in place wherever this can be balanced with other priorities.

The University uses the minimum required amounts of chemical treatments and fertilisers on all grassed areas. Playing fields are managed for sports utility value. Management procedures involve regular mowing and low to no fertilisers and herbicides.

7.5 Formally planted areas

Formally planted areas are managed for maximum visual appeal. Wildlife gardening principles are also considered to create diversity and provide food and habitat sources for wildlife.

When planting is undertaken, consideration is given to creating diverse assemblages of species and habitat structure to provide a variety of micro-habitats and support insect life-cycle requirements. Native, sustainably sourced species are considered to be a key element of this.

Wherever possible, planting is designed to incorporate nectar rich herbaceous annuals and perennials within flower borders and patches or under hedges and trees. A range of species that have varying growth flushes and flowering times are considered to provide a good supply of seeds, berries and flowers throughout the year in order to support a host of visiting or resident species.

When undertaking annual management, some seed heads are left on perennials throughout the winter as these can offer a food source and hibernation site for a variety of birds and insects.

7.6 Conservation area

To maximise the biodiversity value of St John's Campus, the University has developed a conservation area. The main ecological features include grassland that has been managed to increase species richness, various trees species of differing ages, decaying wood features, intentionally created ground undulations, hedgerows, and a pond. This area provides a valuable teaching resource and is used to develop students' practical skills.

The conservation area is managed according to a traditional hay meadow management regime. Species richness is aided by rotavating and reseeding specific areas. The University will continue to protect and manage the area for biodiversity and education.

7.7 Wildflower areas

The 'Malvern Meadow' has been created over many years on the St John's campus and has become an attractive area with a diverse range of plant species that provide food sources to a variety of insects. The area is cut annually in late summer/early autumn.

Wildflower seeds are supplemented, collected or allowed to fall in the area and cuttings are removed to prevent nutrient build up that limits species diversity. To further enrich the area plants have been introduced that have been grown from seed and sourced locally, from the Malvern Common.

A second wildflower area on the St John's campus has also been created and is developing well.



8. Creating New Habitats

8.1 Boosting biodiversity as part of campus developments

As the University continues to grow and expand, new buildings are developed on its campuses. As part of these development plans, opportunities will be sought to not only protect exiting biodiversity features but also to create new habitats and features that boost biodiversity such as wildflower meadows, woodlands and trees, ponds and artificial habitats.

8.2 Tree Planting

The University regularly seeks opportunities to plant new trees on their sites. A number of factors are considered before tree planting is undertaken including the position and suitability of the proposed species type. The following objectives are considered to improve biodiversity when tree planting is carried out:

- To increase habitat connectivity
- To improving the quality and size of existing habitats
- To create a mosaic of habitats
- To select native tree species of local provenance
- To create new habitats

8.3 Wildflower areas

Establishing new areas for wildflower meadow creation needs to be balanced with campus development plans and priorities. Within this, there is scope to increase the wildflower areas on the University campuses. The University plans to identify new areas where wildflowers can be established and managed.

8.4 Bird Boxes

The University looks at each site individually to incorporate bird boxes that accommodate species most likely to be found at that particular location. A range of bird boxes have been put in place throughout the St John's Campus.

The University will continue to consider and fund the placing of new nest boxes to benefit a variety of species, until nesting sites at capacity for the habitats. Particular consideration will be given to providing nest boxes for rare or declining species in the area and for the provision of nest sites on urban sites.

8.6 Bats boxes

The hedgerows and trees on St John's Campus, Battenhall and The Moors Playing fields may already offer good foraging and shelter sites for bats. It is recognised that other University buildings may also provide roosting opportunities for bats.

In order to increase the number of roosting sites, the University has placed artificial bat habitat boxes at various sites and will continue to identify new sites and fund the placing of bat boxes.

8.7 Compost heaps and wood piles

The University creates and manages compost heaps to provide habitats for species that require deadwood, fungus and shelter. These include insects, invertebrates and worms, potentially along with the local priority species, the slow worm (*Anguis fragilis*).

Decaying wood piles support many fungi, bacteria and lichen species, and provide habitat, food and shelter for a variety of vertebrate and invertebrate species including worms, snails, millipedes, centipedes, spiders, mites and other insects. These provide food for many bat and bird populations. To maximise the benefits provided by decaying wood, the University looks to incorporate wood piles within its conservation areas, within vegetation patches and under trees.

9. Managing Invasive Species

Some non-native species are invasive in that they are hard to control and have a negative impact on native biodiversity. The most invasive are subject to management control by law. Japanese Knotweed is one such species. It was present on the Severn Campus but has now been eradicated by the University.

The University will continue to monitor for any signs of Japanese Knotweed and undertake any management required according to the DEFRA Guidance 'Prevent Japanese knotweed from spreading' 2018. As well as the requirements within the Wildlife and Countryside Act

1981 (as amended), the University is aware that it needs to comply with the Environmental Protection Act (Duty of Care) Regulations 1991 and Hazardous Waste Regulations 2005 in disposing of any Japanese Knotweed.

E. Canadensis and Nuttall's Pondweed (*Elodea Nuttallii*) are North American natives that have naturalised in the UK and become problematic invasive species. Both species are commonly sold as oxygenators for the horticultural trade, and can escape into the wild if disposed of irresponsibly. These species are found at Lakeside Campus and physical management control measures are used where they are effective and appropriate.

10. Monitoring and Data Management

Monitoring is an important component of wildlife conservation and enhancement as it can inform management interventions by highlighting current conditions, ecological changes and long-term trends.

10.1 Habitat and species surveys

Academic departments, the sustainability department and grounds team and the Nature Society work together to undertake habitat and species surveys. The Nature Society and other student groups are encouraged to undertake surveying work.

The Nature Society has compiled data and records on:

- the locations of bat and bird boxes and their usage;
- the occurrence of bird, moth and bat species;
- recordings of foxes and badger using camera traps; and
- the occupancy of badger setts.

Academic staff and students at the School of Science and Environment and Education undertake species monitoring in the ponds on the St John's campus. Water quality testing is also undertaken.

Monitoring activities have mainly focused on the St John's campus. Opportunities will be identified to expand monitoring programs to other campuses whilst also developing the dataset at the St John's Campus. The University will also continue to undertake tree surveys and will undertake hedgerow surveys with a view to assessing their composition, quality and 'connectivity' and to inform management practices.

10.2 Data Management

The University uses the information provided by professional surveys alongside data that is gathered by staff and students, through their work and studies, to create a comprehensive inventory of species diversity and biodiversity trends at a finer scale. The recording system that the University will be reviewed in order to improve data accessibility for a wide variety of users.

11. Partnerships, Communication and Training

Working in partnership with local organisations, raising awareness and maintaining and enhancing skills for biodiversity is essential to ensure the effective implementation of this Strategy and its associated Biodiversity Action Plan.

11.1 Partnerships

The University is committed to working in partnership with local and regional groups to benefit from their knowledge, experience and support whilst also supporting wider biodiversity objectives.

Over the coming three years a key focus will be on developing the links with the Worcestershire Biodiversity Partnership that includes local government, statutory, voluntary and public bodies committed to working together to deliver the regional BAP. The University will continue to consult and engage groups such as the Worcestershire Wildlife Trust and RSPB on its projects.

11.2 Communication

The University of Worcester understands that communication is an important aspect of effective biodiversity management. Initiatives are regularly identified on how to communicate biodiversity. The University has created a website where short articles on biodiversity can be posted and feedback given from partners. This can be found at www.susthingsout.com. Information about biodiversity initiatives is also regularly posted on the Sustainability Department website.

Biodiversity areas on site are intended not just for wildlife but also as an educational resource. The 'University Mile' at the St John's campus encourages staff, students and visitors to explore the environment and also improve their health and wellbeing. A Nature Trail has also been established on the campus and leaflets have been produced to show walkers what they will find in each season.

The University will regularly review the need for leaflets and produce new leaflets where benefits have been identified. There are plans to increase awareness and promote education for biodiversity by installing information boards at relevant sites. Biodiversity projects on the Lakeside Campus will also be focused on providing an educational resource for students as well as local schools and members of the public.



Map of the St John's campus showing the University Mile and the Nature Trail.

11.3 Training

The University of Worcester hosted the 'Managing Biodiversity on Campus' Conference, in partnership with the Environmental Association of Universities and Colleges in April 2016. Key members of the Grounds Team and the Nature Society attended the day and received training on how to manage campuses for biodiversity. The Grounds Team also regularly identifies and attends relevant training courses and events.

12. Governance, Review and Reporting

The Strategic Biodiversity Management Group (SBMG) is in place at the University to oversee the implementation of the Biodiversity Strategy and its associated Biodiversity Action Plan. The SBMG meets twice a year and updates the Biodiversity Action Plan at each meeting. The Biodiversity Strategy is reviewed every 3 years by the Sustainability Committee. The Strategy is published on the Sustainability Department's website. The University also reports on the progress in managing and enhancing biodiversity on its campuses as part of its annual sustainability report to the Board of Governors.