Kingston University London

Biodiversity Action Plan 2025-2029

Kingston University biodiversity links https://tinyurl.com/j9zn47d3
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The updated Biodiversity Action Plan 2025-2029, was sent to the Kingston University Estate Committee for notification of the document update in February 2025

Contents

1. Introduction

1.1. What is biodiversity?

Biodiversity (or biological diversity) relates to the diversity of living organisms within a defined area. This includes species from all biota - plants, animals, fungi, bacteria and viruses. The expression can also be used to describe diversity within species populations with regard to genetic variations.

1.2. Why is there a need to conserve biodiversity?

1.2.1. Benefits for the planet– ecosystem processes

Biodiversity is important for the wellbeing of the planet and life on it, including people. At its most basic level, it sustains life by providing food, fuel, raw materials and medicines. It also provides other essential processes such as the recycling of carbon dioxide into oxygen. Biodiversity also benefits the wider environment that humans inhabit. For example, vegetation binds soil and acts as a wind break, alleviating erosion and degradation to the soil in which we grow our food. Wetlands and sand dunes are natural sea defences, helping to reduce the effect of sea storm surges.

1.2.2. Human impact on biodiversity

Human pressures on the planet have continued to increase over a relatively short period of history. These pressures include the spread of urbanisation, intensive agriculture, energy production and mining, and the overuse of biological resources (leading to deforestation etc.). The impacts of these activities are felt both at the local level, but also at the climatic level.

The WWW living planet report 2024 (WWF, 2024) continues to evidence an overall decline in species populations as a result of human activities between 1970 – 2022, with an increase in the rate of decline reported since the publication of the last Kingston University Biodiversity Action Plan in 2020; averaging a 73% decline in the relative abundance of monitored wildlife, an increase of 13%.

All species are part of existing ecosystem processes, by speeding up species extinctions via human activities, we often lose important components of the systems on which we rely, before we even comprehend the long-term impact of that loss.

1.2.3. Benefit to the university

Kingston University (KU) has been actively working to protect and improve biodiversity since 2005. This renewal of the KU Biodiversity Action Plan coincides with its 20th year of work. In addition to legislative compliance, the University benefits from this work in a number of ways:

- The KU Biodiversity Action Plan (BAP) forms part of the University's **Environmental Management System** (EMS). This provides a framework for KU to comply with **legislation**, as well as **monitor** and continually **improve performance**, in relation to biodiversity and wildlife;
- Helps the University to meet **objectives** set out by London's BAP (LBP, 2007) as well as the 2023 Royal Borough of Kingston upon Thames's recently launched BAP (RBK, 2023);
- Saving money by **reducing management intensity** of green spaces and allowing some areas to revert to a more natural state whilst increasing biodiversity value. e.g. by allowing the knoll at Tolworth Court to colonise naturally rather than be managed as amenity grassland, we have saved time and money as it requires no watering, fertiliser/herbicide or pesticide and minimal mowing;

- **Informing** students and staff of the importance of biodiversity, and to **involve, engage and inspire** students from a wide range of disciplines with activities;
- **Volunteering opportunities** arising from biodiversity projects can give students and staff a greater sense of **ownership and pride** in their University;
- Provides Kingston Award accredited volunteering opportunities to all students and provides access to Future Skills activities;
- Biodiversity projects provide a chance to **partner** with many different **stakeholders** and provide opportunities for collaboration of normally separate internal groups;
- Improving biodiversity will help the University to **comply with** its own policies, namely its Biodiversity Policy (Estates and Sustainability, 2024), Environmental Policy (Estates and Sustainability, 2024) and Corporate Social Responsibility Policy (Governance Support and Regulation, 2021);
- Improving and protecting biodiversity will help the University **meet planning conditions** for new developments; this includes meeting targets under the Environment Act 2021 around Biodiversity Net Gain (BNG) and gaining credits under schemes such as the BREEAM assessment;
- Conserving biodiversity can help the University to improve its performance **in national benchmarking** exercises such as the Higher Education Business & Community Interaction (HE-BCI) survey and the Association of University Directors of Estates (AUDE) Green Scorecard;
- The University's 'green image' and overall biodiversity and environmental responsibility **reputation** will improve, locally as well as nationally. As evidenced by attaining awards at the national level, such as honours over the past 4 years in the Hedgehog Friendly Campus (HFC) scheme, from Bronze (2020) to Platinum (2024) (BSHP, 2021; BSHP 2022; HFC, 2023 and HFC 2024); being recognised one of the Platinum tier universities (alongside 41 other universities out of 122 submitted respondents) of the wildlife-friendly universities in the United Kingdom (Ark Wildlife, 2023) and achieving awards from national charities such as the Mammal Society with the Biodiversity Manager recognised as one of its inaugural Mammal Champions for 2024 (Mammal Society, 2024);
- In the form of enriched outdoor spaces. Good quality outdoor spaces have an evidence based positive impact on **improved mental wellbeing for all site users**; and
- The work conducted under the Biodiversity remit contributes to KU's Town House Strategy as reflected in Section 5.

1.3. Legislation regarding biodiversity

1.3.1. Global legislation

Global biodiversity and its threats were discussed at the United Nations Convention on Environment and Development (UNCED) (also known as the Earth Summit) in Rio de Janeiro in 1992. Five agreements on environmental issues were developed and signed at the UNCED, including the Convention on Biological Diversity (the CBD). A total of 178 countries were party to the convention, which aimed to slow the rate of global extinctions by 2010. The CBD specified that action was required at regional and national levels, spurring the UK government to create the UK Biodiversity Action Plan (UK BAP) and the UK Biodiversity Steering Group in 1994 after which many areas including London created their own BAP, and this has fed down to many counties and boroughs. Those local to the University with a BAP include the Royal Borough of Kingston upon Thames (RBK, 2023), Surrey, Richmond and Wandsworth. Although, the UK BAP is no longer an active strategy having been replaced by biodiversity strategies in England, Northern Ireland, Scotland and Wales. However, BAPs are still relevant in London.

1.3.2. UK legislation

There are a number of UK policies and laws that relate to biodiversity. Some are specific to certain species (e.g. Protection of Badgers Act 1992); and some are specific to ecologically important areas or open green space (e.g. MOL (Metropolitan Open Land)). A broader piece of legislation also exists, which places a statutory duty on all public bodies in England and Wales to have regard to conserve biodiversity (the Natural Environment and Rural Communities Act 2006, also referred to as the NERC Act). The UK BAP was superseded in England by "A Green Future: Our 25 Year Plan to Improve the Environment" (DEFRA, 2018), which still incorporates many of the duties of care as listed in the UK BAP. London is in the unique position of being the only area that still adheres to the Biodiversity Action Plan system; as such the London BAP is still applicable to Kingston.

More recently the Environment Act 2021 seeks to set clear statutory targets for the recovery of the natural world in four priority areas including biodiversity. It includes an important new target to reverse the decline in species abundance by the end of 2030, seeking to move forward the aims of the "A Green Future: Our 25 Year Plan to Improve the Environment" plan.

1.3.3. Legislation relevant to Kingston University

All biodiversity (wildlife and green space) legislation relevant to Kingston University is compiled and maintained in a document entitled "Biodiversity and Wildlife Legislation Register". Considerable damage to the University can occur if it is found to be in contravention of any statutory legislation, in the form of both fines and damage to reputation. There is perhaps more risk of damage to reputation with regard to biodiversity law because nature and wildlife are very emotive subjects amongst the general public.

Table 1.3.3 contains examples of the statutory legislation relevant to the biodiversity at different KU campuses at the time of publication. It should be noted that legislation is constantly changing in this sector and a number of the acts cover a range of species. The relevancy of statutory legislation at any given site may change over time with changes in species composition or legislation changes.

2. The Kingston University Biodiversity Action Plan (KUBAP)

2.1. Aims of the KUBAP

The aim of the KUBAP is to **support** delivery of the objectives outlined in the KU Biodiversity Policy, specifically by setting out a series of implementable actions that will enable us to:

- **Conserve** the range of habitats and species across Kingston University;
- **Enhance** the range of habitats and species across Kingston University;
- **Create** new habitats and attract new species to Kingston University and to re-create habitats that once existed but have since been lost;
- **Involve** the students and staff of Kingston University through volunteering and academic opportunities; and
- **Educate** students, staff and local residents on the value of biodiversity and ensure that they are aware of the conservation work that is undertaken by the University.

Table 1.3.3: Examples of biodiversity legislation relevant to Kingston University land holdings.

Site / Legislation	Penrhyn Road Campus	Knights Park Campus	Kingston Hill Campus	Roehampton Vale Campus	Clay Hill	Seething Wells	Tolworth Court	Dorich House
Wildlife and Countryside Act 1981	✓	✓	✓	✓	✓	✓	✓	✓
Countryside Rights of Way Act 2000	✓	✓	✓	✓	✓	✓	✓	✓
Natural Environment and Rural Communities Act 2006	✓	✓	✓	✓	✓	✓	✓	✓
Environment Act 2021	✓	✓	✓	✓	✓	✓	✓	✓
National Planning Policy Framework (NPPF)	✓	✓	✓	✓	✓	✓	✓	✓
Town and Country Planning Act 1990	✓	✓	✓	✓	✓	✓	✓	✓
The Conservation of Habitats and Species Regulations 2017/1012		✓	✓			✓		✓
Regulation (EU) No 1143/2014 and Regulation (EU) 2017/1263 (Invasive Alien Species)	✓	✓	✓	✓				
Plant Health (Forestry) Order 2005 (S12008/644)			✓	✓		✓	✓	
The Hedgerows Regulations 1997							✓	

2.2. Performance indicators

Data is collected on various biodiversity performance indicators including:

- Number of completed green walls
- Number of completed green roofs
- Number of completed brown roofs
- Number of bird and bat boxes/bricks installed
- Number of insect boxes installed
- Number of records submitted yearly to the local records centre (Greenspace information services for Greater London (GiGL))
- Reduction of invasive flora
- Green waste composted and reused
- Number of individual volunteers
- Volunteering hours

Some of this data is already collected and a suitable data collection methodology is yet to be defined for other indicators. Over time, indicators may cease to be useful or additional data may be identified that is already in existence and may usefully inform development of the Biodiversity Policy and KUBAP. Monitoring of this data will enable us to establish how successful our actions are at delivering on our policy's aims. How we are performing against each of these are recorded in the Biodiversity Action Plan data appendices, which are updated annually.

3. The Environment of Kingston University

3.1. Overview: Kingston upon Thames

Figure 3.1 shows the Kingston University campuses in relation to the protected conservation and nature areas of Kingston upon Thames and surrounding boroughs in 2008 as illustrated in the first KUBAP.

The Royal Borough of Kingston upon Thames lies in south west London, just south of the River Thames. There is a large range of habitats both within and surrounding the borough, evidenced by the fact that Kingston is bounded by a National Nature Reserve (NNR) which is also a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI) as well as a second SSSI, and contains twelve Local Nature Reserves (LNR) (RBK, 2023), plus a good deal of Metropolitan Open Land (MOL) and protected Green Belt.

The most prominent biodiversity and conservation features of Kingston upon Thames are:

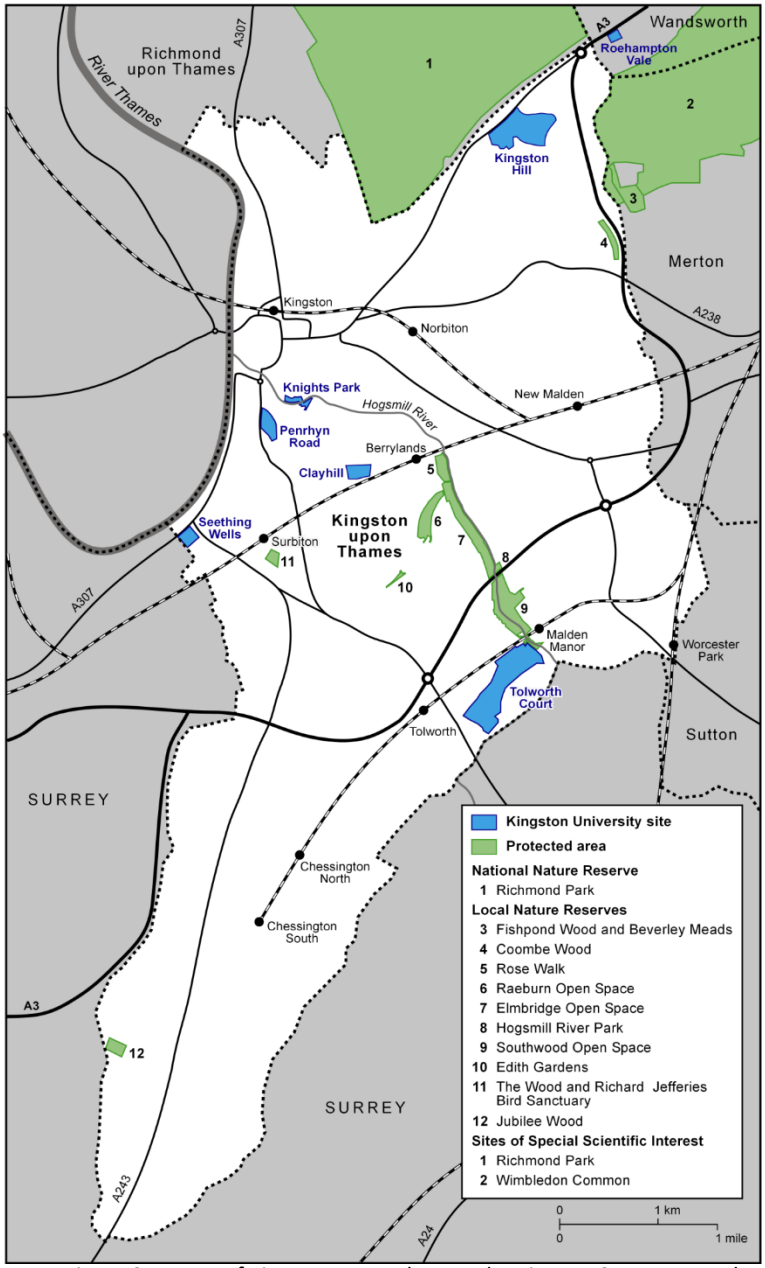


Figure 3.1: Map of Kingston upon Thames showing KU Campuses and protected areas.
Produced by Claire Ivison, Kingston University cartographer.

- Richmond Park (NNR, SAC, SSSI) Technically outside of the borough of Kingston upon Thames, but important when considering that three Kingston University sites lie very close to its borders *(Kingston Hill Campus, Dorich House Museum, Roehampton Vale Campus).*

- Wimbledon Common (SSSI) Only a small amount of Wimbledon Common actually exists within the borough of Kingston upon Thames, but it is of importance in this study because a KU site (Roehampton Vale Campus) located in the London Borough of Wandsworth borders it with only a playing field in between.

- The River Thames, the Hogsmill River, Beverley Brook and the Bonesgate Stream. The rivers, brooks and streams flowing in and out of Kingston upon Thames are important when considering the biodiversity of the area, as they act as wildlife corridors in and out of the borough. Many of the KU sites border directly onto one of these rivers – for example, Seething Wells is close to the Thames, whereas Knights Park Campus and Tolworth Court Sports Ground directly border the Hogsmill.

3.2. Overview: Kingston University

Kingston University comprises four main teaching campuses with landholdings, five halls of residence (two of which are separate campuses in their own right), a large sports ground and an historic house. Each site has its own unique habitat and species range.

Each site's ecological status was established during an initial ecological audit in 2007 and 2008 (Mullett, 2008 a). Information on species has been updated through survey work in subsequent years with detailed summaries of both given in Sections 3.3 – 3.10.

3.3. Overview: Penrhyn Road Campus (Including 75 Penrhyn Road Halls of Residence)

Figure 3.3.a: Photos from Penrhyn Road Campus

3.3.1. Location

Address:	Penrhyn Road Kingston Upon Thames Surrey KT1 2EE	OS grid ref:	(518098, 168540)

3.3.2. Summary

Penrhyn Road is the most obviously urban campus, situated near to Kingston town centre, covering 3.5 hectares. It had few open green spaces prior to 2019; however landscaped spaces increased with the completion of the Town House project in 2019. This rise was through a combination of increased accessible landscaped areas for people, as well as areas accessible to wildlife but not site users, in the form of brown roofs. Many of the trees at Penrhyn Road are protected by Tree Preservation Orders (TPO).

3.3.3. Habitats found on campus

The following habitats are those typical of Penrhyn Road Campus. They are based on the Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey classification (JNCC, 2007), modified after the more recent landscaping work from the Town House project and current landscaping work along our Fassett Road/Grove Crescent eastern boundary. They are listed with the most abundant first (Table 3.3.3).

J 3.6	Built up areas; Buildings
A 3.1	Broadleaved scattered trees
J 1.4	Introduced shrub
J 1.3	Ephemeral/short perennial (brown roofs)
G 1	Standing water (pond)

Table 3.3.3: Habitats typical of Penrhyn Road Campus

3.3.4. Notable species found on campus

Native wild species that have been found at Penrhyn Road include Common Broomrape (*Orobanche minor*) Common Frogs *(Rana temporaria*) and a variety of butterflies and moths including the Elephant Hawk-moth (*Deliephilia elpenor*), show that even our most urban campuses provide habitat for wildlife. The campus also hosts invasive non-native species such as Floating Pennywort (*Hydrocotyle ranunculoides*), New Zealand Pigmyweed (*Crassula helmsii*), Cotoneaster sp. (*Cotoneaster sp.*), Virginia Creeper *(Parthenocissus quinquefolia)* and Japanese Rose (*Rosa rugosa*). These species are listed under **Schedule 9** of the **Wildlife and Countryside Act 1981,** it is an offence to plant or 'otherwise cause' to grow in the wild any species of non-native flora listed on Schedule 9. For KU, this governs disposal and movement of cuttings during landscape management.

3.4. Overview: Knights Park Campus (including the Stanley Picker Gallery, Avionics & Middle Mill Halls of Residence)

Figure 3.4.a: Photos from Knights Park, the Stanley Picker Gallery and Middle Mill Halls of Residence

3.4.1. Location

Address: Knights Park Campus
Kingston upon Thames
Surrey
KT1 2QJ

OS grid ref: (518419, 168740)

3.4.2. Summary

Knights Park is a small campus covering 1.73 hectares. The campus has comparatively few green areas within the footprint of the campus. The importance of this site lies in maintaining the ecological corridor of the Hogsmill River and the many species that use it. Improvement works to the river infrastructure with partner organisations has seen an increase in biodiversity in the river.

3.4.3. Habitats found on campus

The following habitats are those typical of Knights Park Campus (Table 3.4.3). They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007).

J 3.6	Built up areas; Buildings
G 2	Running water (river)
J 1.4	Introduced shrub
A 2.2	Scrub; Scattered
J 1.2	Cultivated land; Amenity Grassland
A 3.1	Broadleaved scattered trees

Table 3.4.3: Habitats typical of Knights Park Campus

3.4.4. Notable species found on campus

Knights Park Campus is home to many waterfowl species such as Mallards (*Anas platyrhynchos*). Mallards are protected under Appendix 2 of the **Bonn Convention 1979,** which lists migratory species that require international cooperation in conservation.

Fish species in the river include the critically endangered European Eel (*Anguilla anguilla*) which are monitored as part of volunteering activities at the university. Invertebrates found in the improved riverside landscaping include species of Lepidoptera (butterflies and moths) and Odonata (dragonflies and damselflies).

The presence of a rich invertebrate population provides a good foraging habitat for species such as protected bats, which have been observed during various bat walks foraging and commuting along the river. Bat foraging areas and commuting areas are protected by the **Wildlife and Countryside Act 1981** and the **Conservation of Habitats and Species Regulations 2010 (England and Wales).** Any works undertaken at Knights Park and Middle Mill must not impact on this habitat to avoid legislation breaches. Where possible, this habitat and the surrounding landscapes should continue to be improved to increase the quality of the commuting corridor for the whole wildlife network and other sites in Kingston.

Other notable species at Knights Park are the invasive non-native species Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*), Cotoneaster sp. (*cotoneaster sp.*), Japanese Rose (*Rosa rugosa*) and Three-Cornered Garlic (*Allium triquetrum*). Efforts should be made to remove these species which can out-compete native species, decreasing biodiversity. Some of these issues will be resolved over time, as work to improve our habitats for pollinators will result in changes to the planting beds. However, some species are a wider catchment level issue, where seeds and plants from upstream are infecting downstream sites. These will take far longer to eradicate and will only happen if the eradication is targeted at the catchment level. These species are listed under **Schedule 9** of the **Wildlife and Countryside Act 1981,** it is an offence to plant or 'otherwise cause' to grow in the wild any species of non-native flora listed on Schedule 9.

3.5. Overview: Kingston Hill Campus (excluding Chancellors and Walkden Halls of Residence)

Figure 3.5.a: Photos from Kingston Hill Campus

3.5.1. Location

Address: Kingston Hill
Kingston upon Thames
Surrey
KT2 7LB

OS grid ref: (520762, 171479)

3.5.2. Summary

Kingston Hill Campus is an environmentally valuable campus measuring 16.8 hectares it has the largest range of habitats and species of any of the campuses. It lies in close proximity to Richmond Park (NNR, SAC, SSSI), which makes the campus important as a wildlife corridor out of the park for the many species that exist there.

3.5.3. Habitats found on campus

The following habitats are those typical of Kingston Hill Campus (Table 3.5.3). They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

3.5.4. Notable species found on campus

A 1.1	Broadleaved woodland; Semi-natural
J 3.6	Built up areas; Buildings
B	Semi-improved grassland
J 1.4	Introduced shrub
C 1.2	Bracken; Scattered
G 1	Standing water (pond)

Table 3.5.3 Habitats typical of Kingston Hill Campus

Kingston Hill has a number of very old English Oak trees (*Quercus robur*) which are of great importance to the biodiversity of the campus, providing a valuable habitat for a range of different species. These trees, as well as others on the site, are protected by TPOs. There are populations of Badgers (*Meles meles*) at Kingston Hill evidenced by the presence of extensive badger setts within the grounds of Kingston Hill Campus. Badgers and their setts are protected under the **Protection of Badgers Act 1992**.

Common Pipistrelle (*Pippistrellus pippistrellus)* and Soprano Pipistrelle (P*ipistrellus pygmaeus)* bats have communal roosts at different locations on this campus and forage in and around this campus, the woodland, and commute to neighbouring sites from here. Bats, their roosts, foraging areas and commuting areas are protected under the **Wildlife and Countryside Act 1981** and the **Conservation of Habitats and Species Regulations 2017/1012 (England and Wales)**.

Other notable species at Kingston Hill are invasive non-native species including Japanese Knotweed, Rhododendron (*Rhododendron ponticum*) Cotoneaster sp. (*cotoneaster sp.*), Virginia Creeper *(Parthenocissus quinquefolia),* Few-flowered Garlic *(Allium paradoxum),* Three-cornered Garlic (*Allium triquetrum*) and Variegated Yellow Archangel (*Lamiastrum galeobdolon subsp. argentatum*) governed by **Schedule 9** of the **Wildlife and Countryside Act 1981** and Oak Processionary Moth (*Thaumetopoea processionea*), governed under the **Plant Health (Forestry) Order 2018**. Efforts should be made to remove or manage these species, where practicable, which have a negative effect on native species.

3.6. Overview: Roehampton Vale Campus

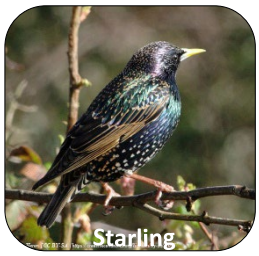
Figure 3.6.a: Photos from Roehampton Vale Campus

3.6.1. Location

Address: Roehampton Vale Campus
Friars Ave
London
SW15 3DW

OS grid ref: (521618, 172379)

3.6.2. Summary



Roehampton Vale is another heavily urbanised site, measuring 1.08 hectares with very little outdoor space apart from the concrete surfaces of the car park and outside storage spaces with limited landscaped beds. On the north western edge of the campus runs the A3, a noisy dual carriageway leading to central London, beyond which lies Richmond Park. To the south, the campus borders directly onto Wimbledon Common an SSSI. The campus has the potential for great ecological value as a corridor between these two important conservation areas. In the last 4 years work has been undertaken to increase the hedgerow planting on site on the southern beds of the campus, as well as adding in insect hotels, loggeries and pollinator planting to the beds on the western side of the campus.

3.6.3. Habitats found on campus

The following habitats are those typical of Roehampton Vale Campus (Table 3.6.3). They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

J 3.6	Built up areas; Buildings
A 2.2	Scrub; Scattered
J 1.4	Introduced shrub
A 3.1	Broadleaved scattered trees

Table 3.6.3; Habitats typical of Roehampton Vale Campus

3.6.4. Notable species found on campus

Native wild species that have been recorded at Roehampton Vale Campus during surveys include Dunnock (*Prunella modularis*) which is on the Amber List and Starlings (*Sturnus vulgaris*) which is on the Red List, of the lists which rank the conservation importance for birds. Badgers (*Meles meles)* have been found on the site at night and different invertebrates including the Ruddy Streak Moth (*Tachystola acroxantha*) classified as a Local Species in Britain. Local Species referring to species found in between 101 and 300 hectads out of a total of approximately 3,893 hectads (10kmx10km) grid squares that cover the UK. This is another campus where invasive Japanese Knotweed (currently eradicated) and Oak Processionary Moth have been recorded.

3.7. Overview: Clayhill Halls of Residence

Figure 3.7.a: Photo from Clayhill Halls of Residence

3.7.1. Location

Address: 81 Burney Ave
Surbiton
Surrey
KT5 8DF

OS grid ref: (519068, 167962)

3.7.2. Summary

Clayhill is a relatively urbanised site with three-storey flat complexes dominating the 2.96-hectare site. The majority of the site, containing a number of shrub beds and small and large trees alongside the buildings, is managed by an external company. KU manages a large amenity managed grassland area which is surrounded by taller scrub land, which forms the eastern third of the site. Directly to the south of the site runs a railway line. A variety of Lepidoptera, Odonata and bird species have been recorded on site; as well as different bees and beetles observed during pollinator surveys since 2023 (Flower Insect Timed Counts (FIT-Counts)).

3.7.3. Habitats found on campus

J 3.6	Built up areas; Buildings
J 1.2	Amenity grassland
A 2.2	Scrub; Scattered
J 1.4	Introduced shrub
A 3.2	Coniferous scattered trees

Table 3.7.3: Habitats typical of Clayhill

Table 3.7.3 list the habitats typical of Clayhill Halls of Residence. They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

3.7.4. Notable species found on site

The unmown border of the amenity managed grassland which runs alongside the railway line is very diverse, containing species such as Black mustard (*Brassica nigra*), Goosegrass (*Galium aparine*) and Common Mallow (*Malva sylvestris*) among others and supports a diverse range of invertebrates including species of dragonflies as well as signs of the Elm Zigzag Sawfly (*Aproceros leucopoda*). Protected bats are in neighbouring sites and may also be supported within the large trees at Clayhill, however bat surveys on the site evidenced a lot of light pollution from the buildings, which will impact how bats are able to use the trees in site.

3.8. Overview: Seething Wells Halls of Residence

Figure 3.8.a: Photos from Seething Wells Halls of Residence

3.8.1. Location

Address: Portsmouth Road
Surbiton
Surrey
KT6 5PJ

OS grid ref: (517295, 167294)

3.8.2. Summary

Seething Wells is heavily urbanised, with residential flats and concreted surfaces covering the majority of the 2.42-hectare site. Since 2020 the site has been wholly managed by an external company, set to continue until 2072. Landscaping works during the changeover did convert some of the previous amenity managed grassland to meadow managed grassland. The extent of the establishing meadow management is still being assessed so is not reflected in Table 3.8.3. All current volunteer surveys conducted on sites we manage, such as the RSPB Big Garden Bird Count and FIT-Counts do continue here. The most valuable areas of the site on handover were the boundary areas to the north-east and south-east which have large unbroken rows of semi natural habitat including broad leaved deciduous trees. The Richard Jeffries Bird Sanctuary (LNR) exists close by.

3.8.3. Habitats found on site

J 3.6	Built up areas; Buildings
J 1.2	Amenity grassland
A 2.1	Scrub; Continuous
J 2.1	Intact hedge
A 3.1	Broadleaved scattered trees

Table 3.8.3. Habitats typical of Seething Wells

Figure 3.8.b list the habitats typical of Seething Wells halls of residence. They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

3.8.4. Notable species found on campus

Seething Wells' most common plant species are all non-native and were most likely planted for aesthetic reasons. Species include Thunberg's Barberry (*Berberis thunbergii*), Cherry Laurel (*Prunus laurocerasus*), Firethorn (Genus: *Pyracantha*) and Butterfly Bush (*Buddleja davidii*).

The high value boundary area to the north-east and south-east of the site, and selected tree lines within the site provides foraging and commuting corridors for bats. Prior to the site handover, species found using the site included Common and Soprano Pipistrelle. Bat roosts are located on neighbouring sites, and the historic buildings and tunnels associated within Seething Wells have records of historic bat roosts within them. Bats, their roosts, foraging areas and commuting areas are protected under the **Wildlife and Countryside Act 1981** and the **Conservation of Habitats and Species Regulations 2017/1012 (England and Wales).** Another notable species at Seething Wells includes the invasive Oak Processionary Moth which was first recorded on site in 2014 and Black Redstarts (*Phoenicurus ochruros*) recorded foraging on site in 2018.

3.9. Overview: Tolworth Court Sports Ground

Figure 3.9.a: Photos from Tolworth Court Sports Ground

3.9.1. Location

Address: Old Kingston Road
Tolworth
Surrey
KT4 7QH

OS grid ref: (520197, 165597)

3.9.2. Summary

Tolworth Court Sports Ground is a very large 22.64-hectare site comprised mainly of shortly mown grass for use as playing fields. The most important ecological aspect of the campus are the extensive native hedgerows containing scattered mature broadleaved trees located throughout the site.

A railway corridor, the Knoll Mead permaculture project and an allotment bound the site along the north-west boundary. This will be an important corridor for species such as reptiles, which will also be using the habitats on Tolworth Court. There is an opportunity to manage the habitat to create a more robust wildlife corridor.

3.9.3. Habitats found on campus

The following habitats are those typical of Tolworth Court Sports Ground (Table 3.9.3). They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

J 1.2	Amenity grassland
J 2.3.1	Hedge with trees; Native species rich
A 3.1	Broadleaved scattered trees

Table 3.9.3: Habitats typical of Tolworth Court

3.9.4. Notable species found on site

The hedgerows of Tolworth Court are characterised by their abundance of native species including veteran Oak species (*Quercus sp*), Hawthorn (*Crataegus monogyna*), Elder (*Sambucus nigra*) and Bramble (*Rubus fruiticosus spp.*) among other species. Some of the hedgerows are of sufficient length to be governed by the **Hedgerow Regulations (1997).** Some of the trees at Tolworth Court are protected by TPOs.

Fauna includes Field Voles (*Microtus agrestis*), Shrews (*Sorex sp*), Green Woodpecker (*Picus viridis*) and Kestrel (*Falco tinnunculus*).

Slow Worms (*Anguis fragilis*), have been recorded on site since 2014, this species are listed on **Schedule 5**, **Section 9.1** of the **Wildlife and Countryside Act 1981**, protected against killing or injury and listed under **Section 41** (England) of the **NERC Act (2006)**. Brown Hairstreak (*Thecla betulae*) butterfly eggs were found on site in 2018, this species is also listed under **Section 41** (England) of the **NERC Act (2006)**.

All species listed under **Section 41** of the **NERC Act (2006)** are classed as species of principal importance for the purpose of conserving biodiversity. Consequently, they will need to be taken into consideration by a public body when performing any of its functions (e.g. planning) with a view to conserving biodiversity.

Bat species have been recorded foraging on the hedgerows around the edge of the site. Bats, their roosts, foraging areas and commuting areas are protected under the **Wildlife and Countryside Act 1981** and the **Conservation of Habitats and Species Regulations 2017/1012** (England and Wales).

The invasive Oak Processionary Moth has been recorded on site since 2017. Efforts should be made to remove this species, where practicable, which have a negative effect on native species.

3.9.5. Biodiversity Management Plan: Tolworth Court 2020

A dedicated Tolworth Court Biodiversity Management Plan was signed off by the University's Property Assurance Group in November 2012. This was updated in 2020 (Estates and Sustainability, 2020).

3.10. Overview: Dorich House Museum

Figure 3.10.a: Photos from Dorich House Museum

3.10.1. Location

Address:	Dorich House Museum 67 Kingston Vale London SW15 3RN	OS grid ref:	(520811, 171917)

3.10.2. Summary

The 0.31-hectare grounds of Dorich House directly border Richmond Park. There is a great opportunity to attract wildlife from the park into the gardens of Dorich House. The most striking feature of the Dorich House grounds is the remnants of a kitchen garden orchard, a historical feature which pre-dates the 1930's house. Restoration of the orchard through the planting of six fruiting trees to ensure that it remained a fruiting orchard occurred in 2011, the varieties reflecting the species that already existed on the site. Further planting has since occurred when trees have been lost to storms, including a variety called the Mitchellson's Seedling which was first cultivated in Kingston Upon Thames in the mid-1800s. The trees in the orchard are managed through volunteer events with Kingston University's Biodiversity Action Group (KUBAG).

3.10.3. Habitats found on campus

The following habitats are those typical of Dorich House (Table 3.10.3). They are based on the JNCC Phase 1 habitat survey classification (JNCC, 2007). They are listed with the most abundant first.

J 3.6	Built up areas; Buildings
A 1.1.2	Broadleaved woodland; Plantation (orchard)
J 1.2	Amenity grassland
J 1.4	Introduced Shrub
A 3.1	Broadleaved scattered trees
J 2.5	Wall

Table 3.10.3: Habitats typical of Dorich House

3.10.4. Notable species found on site

The site is home to a Black Mulberry (*Morus nigra*) which has been confirmed to be over 100 years old and has been recorded on the https://www.moruslondinium.org/ project. The Double Line Moth (*Mythimna turca*) was discovered in the grounds of Dorich House during a moth survey in July 2008 (Mullett, 2008 b). The Double Line is nationally scarce, previously only recorded in Richmond Park and Wimbledon Common. Dorich House may act as a corridor between these two sites for the species. Bats have been recorded roosting in a temporary structure installed on site in 2016, the structure was dismantled under licence and a permanent replacement bat roost placed within a large adjacent tree. Droppings and discolouration seen in 2018 appears to suggest that the roost is being used. Bats are also recorded in tree roosts adjacent to the site within the bounds of Richmond Park.

4. Biodiversity Actions and Objectives

These actions and objectives are designed to assist the University in meeting the aims set out in this Biodiversity Action Plan and the Biodiversity Policy.

After the overarching Estate Vision, habitats are ordered from the most to the least prevalent with actions and objectives ordered by priority.

The progress against the actions and objectives are tracked and updated annually in the KUBAP data appendices.

4.1. Estate Vision

This is the main stage where proposed changes to campus need to be considered to ensure compliance with biodiversity and conservation legislation while seeking new opportunities for increasing biodiversity gains to KU.

With any new campus development, biodiversity and landscaping issues ought to be considered during the planning stages.

Objectives:

- To identify Estate Vision items that may have an impact on biodiversity or contravene biodiversity legislation; and
- To identify Estates Vision items where biodiversity could be integrated.

Factors affecting these objectives:

- Positive: Biodiversity and ecology are now a mandatory element of planning permissions for vision level projects via the **Environment Act 2021**, it is also a section of BREEAM scoring, which helps to ensure that new developments are sustainable. As such inclusion of functional ecology in the design and implementation of Estate Vision projects will meet these legislative and compliance requirements:
- Positive: It is much easier to embed biodiversity or overcome potential issues with new developments at the design and planning stage, rather than considering them during or after construction: and
- Positive: If developments require the creation of a site-specific BAP or a compulsory Habitat Management and Monitoring Plan (HMMP); these will be created under the umbrella of the overarching KUBAP - but will have the opportunity for more site-specific detail.

4.2. All sites

This category contains actions which either span more than one habitat, or do not fit into any other habitat category.

4.2.1. Tree management

Kingston University sites (both owned and leased), contain many trees which must be managed to ensure that trees remain healthy while maintaining the safety of people and buildings. Many of the trees on different KU campuses are also governed by TPOs which fall under the **Town and Country Planning Act 1990.**

Objectives:

- To ensure that a comprehensive and independent tree health and safety survey is undertaken as outlined in the Tree Management Policy (Estates, 2024b);

- To ensure that the results of these surveys are incorporated into the overarching Tree and Woodland Management Plan for Kingston University;
- To ensure compliance with all TPOs on site; and
- To ensure health and safety tree inspections are undertaken annually by the University's contracted arborist.

Factors affecting these objectives:

- Positive: Adequate tree management is a statutory requirement under the **Health and Safety at Work Act** and the **Occupier's Liability Act**, among others;
- Positive: Campus trees make urban spaces greener and more pleasant, provide ecosystem services such as shading and mitigating flood risk, as well as providing habitat for wildlife, so managing their long-term health is important; and
- Negative: Tree management is expensive, though an essential part of remaining compliant with all legislation around health and safety.

4.2.2. Control of invasive species

Many of Kingston University's sites contain invasive non-native species such as Japanese knotweed, Himalayan balsam, and Rhododendron *ponticum*, all of which can have negative impacts on the biodiversity of an area.

Objectives:

- Implement actions in the Invasive Flora Management Plan;
- To eradicate Japanese knotweed from the campuses where it is found;
- To significantly reduce the amount of Himalayan Balsam on the sites where it is found;
- Work with partner organisations to reduce the inflow of Himalayan balsam down the catchment onto our sites and others by tackling upstream sources;
- To ensure that any Oak Processionary Moth nests, where found, are dealt with in accordance with the University's Oak Processionary Moth Management Plan (Estates, 2022), a technical appendix to the KU Tree and Woodland Management Plan (TWMP);
- To work with the Hogsmill Catchment Partnership to support all projects that work to remove invasive species from the catchment; and
- To ensure that where found, invasive species are recorded and dealt with appropriately.

Factors affecting these objectives:

- Positive: The University has a statutory duty under the **Wildlife and Countryside Act 1981** to ensure that invasive flora species are 'not allowed to grow' and spread into the wild;
- Positive: Managing invasive species will ensure the health and biodiversity value of campus habitats;
- Negative: There is a cost implication with management of invasive species; and
- Negative: The location of some species may hinder complete removal if there is a conflicting protected species issue i.e. Rhododendron stands overlying active Badger setts. In these instances, the protected species needs will take precedence.

4.2.3. Chemical usage

The use of chemicals in the outdoor environment has a known impact on biodiversity. High diversity grassland is characterised by low nutrient inputs and the addition of chemical fertilisers can have a damaging effect. Similarly, aquatic environments are vulnerable to chemical pollution. **The Water Resources Act 1991** requires written consent from the EA for any potentially harmful activities in or near aquatic environments. This includes the use of herbicides and other

chemicals. Also pertinent is the subject of the sustainability of chemical herbicides and fertilisers, and their ethicality given case law regarding carcinogens in glyphosate-based herbicides. They are high energy goods and therefore have a large carbon footprint associated with them, especially when compared to internally produced compost. However, they are often less labour intensive then manual weed removal. Where the university is looking to undertake savings financially, working to go pesticide and herbicide free would be extremely beneficial to biodiversity and to would help reduce this element of the University's carbon footprint and costs associated with these chemicals. However, there may be increased costs associated with manual activities such as weeding more frequently, which would be needed to maintain a certain look to campuses.

Objectives:

- To aim to be a synthetised chemical free campus if possible;
- To create Chemical Usage Guides for the campuses – including maps to illustrate areas in which chemicals should not be used;
- To ensure the University grounds contractors adhere to the Chemical Usage Guides;
- To agree the chemicals that may be used on site and the methodology of their usage; and
- To aim to become self-sufficient in use of internally produced compost and mulch for use on amenity shrub beds.

Factors affecting these objectives:

- Positive: The University has a statutory duty under the **Water Resources Act 1991** to ensure that any chemical usage in or near watercourses (i.e. Knights Park and Middle Mill) has written consent from the Environment Agency;
- Positive: Reducing chemical usage will help to improve the biodiversity potential of the campuses;
- Negative: being chemical free may mean that the campus will be hard to keep “weed” free, which can lead to some complaining about the aesthetics of the site, regardless of the benefits to biodiversity and reduced carbon footprints;
- Negative: if the aesthetics are prioritised, then there may be an increase in costs for manual removal of unwanted plants from areas;
- Positive: reducing the amount of green waste removed from site has associated cost savings related to disposal; and
- Positive: Becoming self-sufficient in compost and mulch produced from internal green waste will make the grounds maintenance more sustainable and could help reduce long-term procurement costs.

4.2.4. Build biodiversity awareness into external contracts

The University employs many external contractors on both long and short term bases.

Objectives:

- To ensure that external contractors meet the requirements to comply with biodiversity best practice and legislation, such as protected trees, badger setts and KU Biodiversity Best Practice Guidance, when on campus; and
- To ensure that any damage to green space during works is reported and remediated by the contractors responsible.

The above objectives are the responsibility of the relevant project managers.

Factors affecting these objectives:

- Positive: The University procurement process has a duty to ensure that external contractors comply with all statutory obligations;
- Positive: Ensuring that contractors remediate any damage to green space will reduce costs to the University in the long term;
- Positive: reputation;
- Negative: Occasionally, additional costs may arise in order to comply with biodiversity legislation, i.e. devices to protect root protection zones may have an additional cost during development or remediation works; and
- Negative: Establishing which contractors have caused damage can be problematic when the damage is not reported immediately. In addition, damage to the tree's root system may not have an impact on the tree's visual health for months or years. Damage in this case can be both through digging up the area and disturbing the roots, as well as high compaction of the surface roots through inappropriate storage of items under trees.

4.2.5. External partnerships

Working with external partners can be mutually beneficial and can enhance the student experience by providing networking and work experience opportunities outside the smaller KU setting and feeds directly into initiatives such as Future Skills (Kingston University, 2021).

Objectives:

- To partner with outside organisations, where relevant and mutually beneficial; and
- To engage one new partner or deliver one partnership project every year.

Factors affecting these objectives:

- Positive: access to new expert knowledge, access to non-KU projects or funding;
- Positive: The University's reputation for biodiversity projects will increase; and
- Positive: The partnership projects provide opportunities for students to network with organisations and individuals in different sectors, strengthening their employability and contributes directly to the Future Skills agenda at KU.

4.2.6. Biodiversity education and awareness raising

Educational events such as bat walks and awareness projects such as installing interpretation boards and volunteering opportunities on biodiversity projects contributes to enhancing the student experience at KU. They also provide opportunities that can contribute to awards such as The Kingston Award or be used to evidence Future Skills, all while contributing to other objectives in the KUBAP.

Objectives

- To run educational and awareness raising biodiversity projects and events.

Factors affecting these objectives:

- Positive: Taking part in these types of events will add to the student experience;
- Positive: Some educational events will be very relevant to students on degree courses related to the environment/ecology and sustainable design;
- Positive: If campus users are more aware of and appreciative of biodiversity, they will be more likely to care for their campuses and, if so a reduction in litter, vandalism etc. may be seen; and

- Negative: not enough capacity at KU for running more of these events outside of the existing commitments within biodiversity due to the lack of other staff or volunteers with a sufficient combination ecological expertise and local knowledge of our sites.

4.2.7. Recording biodiversity

In order to best manage biodiversity across all university sites, it is important that the University documents all species and habitats found over the course of time. This can be achieved in a number of ways such as conducting professional ecological surveys, participation in national citizen science surveys and encouraging informal reporting of sightings. Data collection in this way will provide records of status and reveal trends in biodiversity. Baselines can then be established from which to chart progress and inform future conservation measures. By sharing this data with others, the University can contribute towards larger scale biodiversity initiatives both locally and nationally.

Objectives:

- Undertake regular ecological surveys of all campuses and maintain up to date biodiversity records;
- Audit all past projects to compile and maintain a register of older surveys in one location;
- Maintain a GIS system to record key biodiversity features/ecological data and see changes over time,
- Investigate methods to export data easily to the new Estates Management System (a CAFM system provided by Planon); and
- Include students and other volunteers in this process where possible.

Factors affecting these objectives:

- Positive: An integrated GIS system into the new CAFM system would allow access to species data and management maps quickly, providing one location as a reference point for all staff, contractors and students where applicable;
- Positive: Volunteer monitoring schemes can produce a lot of data with minimum costs in terms of staff time for the University;
- Positive: once engaged, students can be inspired to find creative solutions to issues, and by engaging people early on in their career, ecological best practice and a respect and appreciation of the natural environment will be embedded in their future life choices;
- Negative: Regular professional ecological surveys for all species groups will have varied financial costs, which will require prioritising under current fiscal budgets and may result in time lags in the information held by the University; and
- Negative: The success of monitoring projects that involve students depends entirely on the number and enthusiasm of volunteers – something which cannot be guaranteed from year to year.

4.3. Urban

The urban and built environment is easily the most widespread habitat across all University sites. Contrary to popular opinion, urban environments can be a valuable habitat for species that have evolved to co-exist with humans. A commonly used example would be House Sparrows and Swifts, two bird species which have adapted to living in the eaves of houses. Urban areas can also be made to appeal to a wider diversity of species, simply by changing some aspects of management.

4.3.1. Outdoor lighting

Artificial night lighting has an important role to play in the health and safety of campus users. However, excessive lighting, particularly outdoors, is a common urban issue ranging from instances of needlessly bright outdoor lighting, to lighting which has no real purpose such as feature or vanity lighting which are the illumination of buildings and trees for aesthetic reasons only. This can give rise to and add to existing light pollution which can negatively impact upon people and wildlife, as well as being an obvious waste of energy and therefore money. The impact of light pollution on wildlife is well documented – it can disrupt the feeding, breeding and migration habitats of nocturnal wildlife, resulting in fragmentation of wildlife corridors negatively impacting the local ecosystem. To mitigate this at Kingston University external campus lighting should always conform to both "KU desktop lighting guidance 2.0" (Estates, 2023) and the design guide "KU Landscaping and Urban Design for Bats and Biodiversity" (Estates, 2016). Internal lighting for new buildings should also be designed to minimise light spill into the outside environment.

Objectives:

- To ensure that feature/vanity lighting is not part of any proposed lighting scheme on any KU sites including very urban areas;
- To communicate the KU good practice guidance document for outdoor lighting across the whole University with regard to wildlife conservation; and
- To aim minimise light use in our external areas, especially where there are primary routes which are already well lit.

Factors affecting these objectives:

- Positive: removing all feature/vanity lighting saves money and removes or reduces negative impacts on nocturnal biodiversity;
- Negative: Light pollution in the external environment due to poor design/a design issue, does not appear to be an issue which is readily communicated through the architecture industry or regulated via planning. This often results in designs which are presented, both at KU and wider afield, saturated in light pollution and purely for the sake of aesthetics. Unfortunately once these designs are communicated, it can be externally difficult to get changes made to the design to minimise light pollution; and
- Negative: Some may worry about the safety of campus users at night – this can be resolved by selecting suitable light fittings and working closely with the health and safety team.

4.3.2. Invertebrate and pollinator habitat

Urban areas can be made more pleasant by well-planned planting and landscaping. In areas outside of existing native habitat, there is a larger scope for using non-invasive non-native planting which can benefit invertebrates and other wildlife while making the campus a more attractive place to users. All planting schemes need to fulfil the three main functions of invertebrate's ecology, which encompass pollinator, hibernation and larval food for young. The FIT for Wildlife Project, launched in 2022 works to look at the full invertebrate life cycle, and match these to our habitat management practices. Aiming to maximise our sites' ability to support a diverse invertebrate population, and all of the species that rely on invertebrates as part of their life cycle, such as birds needing invertebrates to feed their young. It should be noted that traditionally manged honey hives are not part of this strategy. They do not contribute to the work to increase pollinator species or invertebrates because of the negative impact of this farmed species on native populations. On our sites we only have one area with a few hives that have been moved to the Sustainability area of work, as they are used for engagement purposes only, but requests for new hives on any of our sites will not be actioned because of the negative impact on native pollinators.

Objectives:

- Use the methods established in the KU developed FIT for Wildlife project, based on the National Pollinator Monitoring method of Flower Insect Timed Counts (FIT-Counts) to improve our site management for pollinators and other invertebrates; and
- Assess all formal landscaping within KU sites and create plans for improved planting which will benefit biodiversity and (where possible) providing year-round interest for people.

Factors affecting these objectives:

- Positive: Improved habitats for invertebrates will help improve the food provision for groups of animals such as nesting birds, or species such as Badgers and Hedgehogs which rely on invertebrates for a healthy diet;
- Positive: Largely native planting schemes, could be managed less intensively post establishment to reduce maintenance costs;
- Positive: improving the biodiversity quality of our green spaces increasing wellbeing;
- Negative: Costs for maintaining and replacing formal planting;
- Negative: in a lot of instances with predominantly native species, more detailed management would be needed to ensure year-round interest and "tidiness". If this were to be executed properly it would increase grounds maintenance costs as more horticultural expertise would be needed; and
- Negative: Some locations must be planted with predominantly native species, due to their proximity to native habitats such as woodland. Due to the large component of native species, these areas will always be impacted by seasonal changes and as such, may not be visually appealing throughout the year – leading to negative feedback from site users.

4.3.3. Bird and bat boxes/bricks

The populations of certain species of bird and bat are vulnerable, with the main reason being habitat loss. To counter the loss of natural habitat, it is possible to create artificial habitats. Bird and bat boxes can be retro fitted to building eaves, or bird and bat bricks can be built into new developments.

Objectives:

- Bird and/or bat bricks should be considered for inclusion in new developments; and
- Bird and/or bat boxes should, where appropriate, be considered for retrofitting on buildings.

Factors affecting these objectives:

- Positive: Certain species of bird (e.g. Swifts) traditionally rely on the eaves of tall buildings for nesting and so can easily be enticed into using bird boxes or bricks that are positioned at the correct height;
- Positive: Both birds and bats are considered emotive subjects with the general public, and so providing nesting boxes would gain favourable public relations for KU. However, for this to be a genuine positive action for biodiversity rather than communications greenwashing; implementation in the development (rather than offsetting to another site) must be evidenced and bat boxes MUST NOT be placed in areas which will be impacted by light pollution;
- Positive: Basic wooden bird and bat boxes can be made with the help of student and staff volunteers; and
- Negative: Bird boxes often need maintenance i.e. removal of old nesting material and cleaning every year after nesting season finishes in late August.

4.3.4. Community gardens

Contact with outdoor green space is known to be an important aspect of people's health and wellbeing. Creating a space for students and staff to manage their own garden encourages them to use, appreciate and feel a sense of ownership with campus green space and biodiversity. However growing spaces in Kingston University have been under-utilised, with spaced which had been set up, being abandoned if no organised activities are taking place.

There is no capacity to support the management of these spaces through regular organised events run under biodiversity without impacting other programmes of work. In 2021, we investigated a change of management for 1 of the remaining growing spaces at Kingston Hill, with a different team managing the space, unfortunately because the team had little understanding of the local ecology, we had an issue of invasive plants being introduced to the campus via the community garden.

As such the objective around community gardens has changed. Now, for a new growing space to be considered, a group has to demonstrate that long term commitment to an existing growing space first. Where they can show that they have safeguards around what is grown on site and can prove that they are adhering to all biodiversity documentation such as our invasive species plan.

Objective:

- To identify campuses and areas which would benefit from community gardens and to only install them where:
    - If the group of students and or staff requesting the space can evidence that they have been volunteering for over 1 years in an existing KU food growing area (Kingston Hill or Knights Park); and
    - And they can prove that they have adhered to all biodiversity protocols at Kingston University.

Factors affecting these objectives:

- Positive: Community gardens can put previously bare unused areas into use;
- Positive: Community gardens can bring a sense of achievement and attract in gardening volunteers;
- Negative: horticulture and ecology are not the same thing, often "good" horticultural practices can negatively impact biodiversity, and so must be limited, this can often lead to conflicts between different site users; and
- Negative: Student and staff enthusiasm. Time and dedication is necessary for these schemes to succeed as it relies on regular volunteers all through the year and between academic years. So far these schemes at Kingston University have not been ones which have been able to be maintained beyond one off – biodiversity led events, or outside of schemes which have allowed staff members to adopt and use a space in work time, such as Green Impact.

4.3.5. Green walls

Green walls are a brilliant way to increase biodiversity in urban and confined spaces. As well as increasing the diversity of vegetation in an area, they can provide a habitat for insects, nesting locations for birds and food for birds and small mammals. The simple way of creating a green wall is to plant climbing species against a wall or fence which has a trellis attached to it. Some green walls are more heavily engineered, consisting of a tiled growing medium attached to walls, often with a watering system, in which many kinds of plant can be grown.

Objective:

- Target one campus per year over the next five years to assess the number of walls which can support greening and where appropriate, to 'green' urban campus areas by utilising empty wall space to install trellis and train climbing plants.

Factors affecting this objective:

- Positive: The positive biodiversity and aesthetic impact is large compared to a relatively small monetary input;
- Positive: Native climbing species are hardy and will often be happy in most types of soil and situation;
- Positive: nesting sites in green walls do not have to be maintained yearly as bird boxes do;
- Negative: Climbing species can become woody, and so proper management is necessary to keep them looking green and healthy, incurring an annual cost; and
- Negative: time lags – with limited resources, smaller plants are often used in projects, this can result in a project taking upwards of 5+years before site users start to see a discernible visual impact.

4.3.6. Green/biodiverse green roofs (including brown roofs)

As well as being visually attractive, green and brown roofs provide a valuable habitat for invertebrates, food and water for birds, reduce urban storm-water runoff and reduces heat loss associated with roofs. Green roofs contain a substrate which can be planted with almost any vegetation, including, wildflowers and heathers. Brown roofing is the practice of laying varying sizes of substrate material on the roof and allowing it to naturally colonise. Although brown roofs take longer to establish, when installed correctly they are often more biodiverse than green roofs. However, because of the issues around installation issues in the industry, the focus has now moved away from brown roofs to "Biodiverse Green Roofs" which includes roofs which fall into the brown roof category (GRO, 2024).

Objectives:

- Target one campus per year over the next five years to assess the number of roofs which can support a green/brown roof system. Where appropriate, green and brown roofs should be considered for retrofitting;
- Green/brown roofs should be considered for application on all new developments; and
- Monitor existing green and biodiverse green roofs for biodiversity.

Factors affecting these objectives:

- Positive: Green/brown roofs are one way of mitigating for biodiversity loss during new developments;
- Positive: It has been demonstrated that installing green/brown roofs can gain favourable PR attention;
- Positive: Monitoring the work that has been installed, allows for best practice to be shared amongst the Higher education sector as we have been doing, to demonstrate the benefits and issues around installing and establishing and maintaining these features – which supports the values of the Town House Strategy as well as feeding directly into Theme 3 (see section 5);
- Negative: It takes time to educate people into appreciating that biodiverse roofs are not supposed to be "gardens" full of flowers at all times. People's expectations of what good looks like need to be managed a lot for these sorts of roofs when they are in view;
- Negative: Green/brown roofs can be expensive to install in and do require maintenance by accredited specialist roofing companies, although no more than a traditional roof,

- Negative: If installed incorrectly, or impacted negatively during related maintenance works, the structure of the roof can be compromised, resulting in long term failure and the perception that these valuable interventions need to be avoided in new projects; and
- Negative: Proper monitoring takes time, and if access has not been designed in properly for surveying, this makes monitoring much harder to undertake efficiently.

4.3.7. Amenity Grassland

See Section 4.4.2.

4.4. Grasslands

There are a number of different types of grassland across the KU campuses. Kingston Hill has a small lawn of lowland acid grassland, uncommon in London, which fades into marshy grassland at the bottom of the lawn. Most of the grassland across the University campuses is amenity grassland, which can be managed to have a more positive contribution to the biodiversity of KU sites.

4.4.1 Acid grassland management

Coombehurst Lawn at Kingston Hill is a large sloping are of acid grassland. This is a rare and declining habitat across the South of England (London Biodiversity Partnership 2005, 2010) and should be conserved and managed according to best practice for this particular kind of habitat. Three quarters was modified during building works in 2011 which resulted in a loss of acidity and affected the species composition. While works have continued to try to reinstate the areas of acid grassland to pre-2011 levels, these have not worked, and expert opinion from habitat experts are that this will not be possible within the habitat management provisions at the university. As a result, objectives have been changed to maintain current levels and ensure that they do not degrade further.

Objectives:

- Maintain current levels of acid grassland and to allow no further degradation of the site;
- To manage the remnants of acid grassland around the Coombehurst wildflower meadow according to best practice in order to ensure its continued health; and
- Assess the condition of the grassland and soil biennially.

Factors affecting the action:

- Positive: Having a rare 'priority' habitat on campus is an opportunity to demonstrate commitment to conservation; and
- Negative: At times, best practice management may involve allowing grass to grow more 'wild' than is traditionally seen on the University campuses, which some may consider messy.

4.4.2. Amenity grassland management

University campuses contain small pockets of 'improved' amenity grassed areas, often entangled amongst the urban areas of campus. These grassed areas are, in their original state, of limited/little value to the wider biodiversity of the KU campuses.

Objectives:

- To maximise the biodiversity potential of amenity grassland by gradually introducing 'buffer strips' – unmown margins where grass is allowed to complete its lifecycle, providing cover and food (seed, nectar) for various species of insect and bird;
- To increase wildflower planting in a more landscaped fashion in these areas; and

- To reduce or eliminate (as appropriate) the use of chemicals on amenity grassland.

Factors affecting the action:

- Positive: These management measures while complicated initially, could save money;
- Positive: Actions as simple as reducing chemical usage can help to increase the biodiversity of an area; and
- Negative: Allowing buffer strips to grow long and wild may lead some people to consider these areas 'messy'. Appropriate signage would be one solution to this, but would require a measure of investment.

4.4.3. Wildflower meadows

Wildflower areas can be sown in strips, or large or small block areas in space that was previously low value intensively-managed space (i.e. low value amenity grassland).

Objectives:

- Where appropriate, improve the aesthetics and biodiversity potential of previously urban campus areas by sowing wildflower meadow strips, blocks or creating mini meadows.

Factors affecting the objective:

- Positive: An easy way to quickly improve the aesthetics and biodiversity value of an area;
- Positive: Wildflower areas are a very 'visible' form of biodiversity and therefore good for raising awareness;
- Negative: Some people may consider these areas to be unmanaged areas and messy. Some investment in interpretation features and other communications can educate the campus audience, but will require investment; and
- Negative: True wildlife areas will be seasonal, so may appear uninteresting in the wintertime, even though they will be contributing to important stages in invertebrate life cycles at this time if left uncut.

4.5. Woodland

The Kingston Hill campus contains nine hectares of woodland. The site sites on the location of the ancient Coombe Wood, and parts of the existing woodland are the remnants of that ancient woodland. The entire woodland sits within the 'Kingston Hill' conservation area, enforced by the Royal Borough of Kingston.

4.5.1. Kingston Hill woodland management

Stewardship of such an important and protected woodland means that a specific management plan based on the site ecology is vital to ensure effective and consistent management.

Objectives:

- To ensure that the Tree and Woodland Management Plan is reviewed and updated in accordance with its review period, which considers:
  - Best practice management for wildlife and biodiversity; and
  - The health and safety of woodland users.

Factors affecting these objectives:

- Positive: Appropriate management will ensure the ongoing health, longevity, biodiversity value and safety of the woodland;

- Positive: Management of the woodland can be undertaken with student, staff and local resident volunteers, which will help raise awareness of woodland sustainability issues;
- Negative: Woodland management with volunteers requires dedicated input from experienced ecologists who can both manage events and have ecological knowledge of the site to ensure that site activities do not counter-intuitively result in damage to biodiversity; and
- Negative: Woodland management will require a monetary input which will vary from year to year.

4.6. Freshwater (rivers and ponds)

The Knights Park and Middle Mill campuses are divided by the Hogsmill River, a freshwater tributary of the Thames that rises in Ewell and joins the Thames at Kingston. Ponds exist at Kingston Hill and Penrhyn Road. The concrete lined Kingston Hill pond is naturally spring fed – it sits in a very damp and boggy area and was probably originally created to alleviate this waterlogging. It can be seen on maps dating as far back as 1880, a second raised pond is in one of the courtyards on site. The Penrhyn Road pond is an entirely artificial pond and does not appear on any map and is probably a more recent addition.

4.6.1. Eel trap surveying

After 10 years of monitoring, it was deemed that no further information for this section of the river was needed for eels, and so the project was closed at the middle mill site after the final monitoring sessions in 2022 finished.

4.6.2. Riverfly Monitoring Initiative (RMI)

Work continues on the coordinated RMI scheme, with additional work now being undertaken to sample chemical pollutants in the water at the time. A sampling point in the Hogsmill adjacent to Middle Mill is one of a number of sites on the Hogsmill River which have now been monitored for 10 years. The work contributes to catchment level work undertaken by the Hogsmill Catchment Partnership (which the university is part of). The work also informs the Environment Agency (EA) when pollution incidences occur.

Objective:

- Continue the RMI project.

Factors affecting the objective:

- Positive: This project comes at low cost to the University;
- Positive: Engaging many external partners including statutory bodies such as the Environment Agency;
- Positive: This project gives a chance for student volunteers to work on a practical; conservation project with external partners contributing to the Future Skills mandate
- Negative: The success of this project depends entirely on the number and enthusiasm of volunteers – something which cannot be guaranteed from year to year; and
- Negative: An investment of time from relevant staff at the university is needed to ensure that the positive factors are maintained.

4.6.3. Waterlife Recovery South East (WRSE) project

This is a new initiative on the Hogsmill River, part of work covering the whole of the South East of England, over 14,633 km^2 (11.2% of England) and comprises seven counties - Hampshire, Berkshire, West Sussex, East Sussex, Surrey, South London and Kent.

Objective:

- To monitor the Hogsmill for the invasive American Mink and remove them from the catchment to aid in the recovery of native species such as water vole and kingfishers.

Factors affecting the objective:

- Positive: This project is vital for improving the Hogsmill River at the Catchment level, to help native species recover, and maintain reintroduced populations such as the water voles that have been reintroduced to the Hogsmill River in 2022, after going locally extinct in 2017; and
- Negative: While an invasive species which has detrimental impacts on native wildlife, because mink are seen as cute to many members of the public, there will be some who do not want mink eradicated from the catchment, despite the issues that they create to biodiversity.

4.6.4. Kingston Hill ponds management

There are two ponds at Kingston Hill, a small raised pond in the mid-level courtyard and a large pond at Coombehurst. Surveys of the Coombe Hurst Pond in 2015 confirmed the presence of Smooth Newts. 2006 surveys suggested occupation by Water Voles, an endangered species. However no evidence has been found since 2006, and historical evidence may be from mis-identified field signs of other native rodent species present on site such as Field Voles and Bank Voles *Myodes glareolus*.

Objectives:

- Regularly eliminate the Rhododendron and bamboo from the fringes of the pond; and
- Maintain both ponds according to best practice management for wildlife.

Factors affecting the objectives:

- Positive: Managing the pond with the help of volunteers is cost effective;
- Positive: Initial restoration works have greatly improved the ability of the pond to support a greater diversity of species;
- Negative: It will take many years of sensitive remediation before the pond is fully restored to its full wildlife potential; and
- Negative: as this is seasonal pond, it does dry out regularly as our weather conditions are slowly changing and the surrounding trees get bigger. This results in increased requests to artificially fill the pond with tap water. As the chemicals in tap water – used to keep water fresh for consumption, have a negative impact on wildlife, each year a constant communication effort must be maintained to ensure that this request is not actioned.

4.6.5. Penrhyn Road pond management

The Penrhyn Road pond had a leak which, pre 2009 was fixed via a volunteer event and then a subsequent leak was patched in 2021. The pond currently supports a healthy population of Common Frogs and is an actively used teaching tool for the School of Life Sciences. However, it contains two introduced non-native invasive species which cannot be irradiated without the long term intervention or the use of considerable commercials.

Objectives:

- To manage the pond appropriately to ensure that leaks do not reoccur;
- Run annual volunteer events to remove large amounts of accumulated invasive plants and compost them on site;
- To create a new clean wildlife pond to the north of the Town House; and
- To clean out the old pond fully, once a new pond has been created and established to ensure no breaks in teaching,

Factors affecting the objectives:

- Positive: Clean ponds are a fantastic method to biodiversity on sites, they provide a vital resource for both aquatic and land-based species;
- Positive: This pond is actively used as a teaching tool;
- Negative: A little management and upkeep will be necessary to keep the pond in good condition;
- Negative: Ponds on site will have to be lined because of the geology of the area, this adds costs to the creation of any new pond as well as the replacement of any pond which had had the liner punctured; and
- Negative: unless funding is put in place to completely remove and replace the old pond, and then allowing for controlled colonisation of vegetation, eradicating the invasive species issue in the pond and preventing it from reoccurring in the future is unlikely.

4.6.6. Riverbank naturalisation

The riverbank at Knights Park was a tall concrete wall which had little value to biodiversity. A long term project was started under the 2010 KUBAP to naturalise the riverbank and bed by creating an artificial bank and creating channel eddies with the use of deflectors to increase the sites ability to support greater levels of biodiversity. The creation element of the work is now complete, and the bank continues to mature to support wildlife including willow trees.

Objective:

- To maintain the naturalised riverbank using volunteer events.

Factors affecting the objective:

- Positive: surveys undertaken have shown that the project has increased the biodiversity in this area of the river, including an increase in fish species and numbers;
- Positive: In a very visible area, the appearance of the riverbank has been improved from a bare concrete wall to a vegetated bank;
- Positive: The project engages with volunteers from students, staff and local community volunteers and raises awareness about river biodiversity and the profile of Kingston University in local conservation networks as well as in the Higher Education Sector as we have used the work as examples of what others can do on their sites/local area;
- Negative: a certain degree of upkeep and maintenance is needed throughout the year. This will be done by volunteers, so the level of maintenance may not be constant from year to year; and
- Negative: now that the bank is present, it highlights the amount of rubbish entering the Hogsmill River at the university site through the presence of food and cutlery and cups which are from the university.

There are continual issues with rubbish from the student and staff canteen and bar area falling into the naturalised bank from the terrace area. Some action has been taken to try to engage students with the issue of litter and the river by working with students on different courses at KU to get them to find ways of communicating to their peers of the issues. Maintenance staff at Knights Park have been instrumental in clearing the accumulating rubbish they can access from the bank (outside of volunteer events).

4.7. Hedgerow

Native species-rich hedgerows, and the ditches that often accompany them are a valuable yet declining habitat. Both hedgerows and ditches can be found at the University's Tolworth Court

sports ground and some hedgerows at Tolworth Court are governed by the Hedgerow Regulations (1997).

4.7.1. Hedgerow (and ditch management)

At present the Tolworth Court hedgerows are managed as per the Biodiversity Management Plan, Tolworth Court 2020, best practice management for wildlife, and the needs of the sports ground need to be balanced to ensure that the hedgerows are kept in the best possible condition for wildlife.

Objective:

- Continue to work with the Services for Students Directorate and their Grounds staff on the implementation of the site-specific management plan to cover ditches, hedgerows and protected species.

Factors affecting the action:

- Positive: Some hedgerows at Tolworth Court are subject to the **Hedgerows Regulations;**
- As such achieving the aims of the TCBMP will ensure compliance with the regulations;
- Positive: The opportunity exists to raise awareness of the importance of hedgerow biodiversity with site users and the university community;
- Positive: Desilting the ditch next to the vulnerable reptile habitat may becoming un-necessary if some of the drainage issues in the most biodiversity vulnerable areas can be resolved;
- Negative: The hedges might be perceived to be neglected by the typical users of the site, but an ongoing education and communication exercise can educate them about the benefits; and
- Negative: the perceived negative view of the site-by-site users to the sports ground can be detrimental to the wellbeing of staff who manage the site.

4.8. Orchard

The 'Traditional orchard' is recognised as a habitat in its own right under the UK Biodiversity Action Plan. It is an important yet declining habitat, characterised by the open planting of fruit and nut trees amongst herbaceous vegetation. Dorich House museum contains a very kitchen orchard which is thought to pre-date the 1930's house.

4.8.1. Dorich House orchard restoration, expansion and management

The Dorich House orchard contains some very old trees, for which there are no replacements if they die.

Objectives:

- To restore the ancient orchard trees to ensure their health, safety and longevity;
- To expand the orchard with new fruit tree varieties of local and historic provenance; and
- To put in place a site-specific Orchard Management Plan to ensure ongoing best practice management for the health and biodiversity value of the orchard.

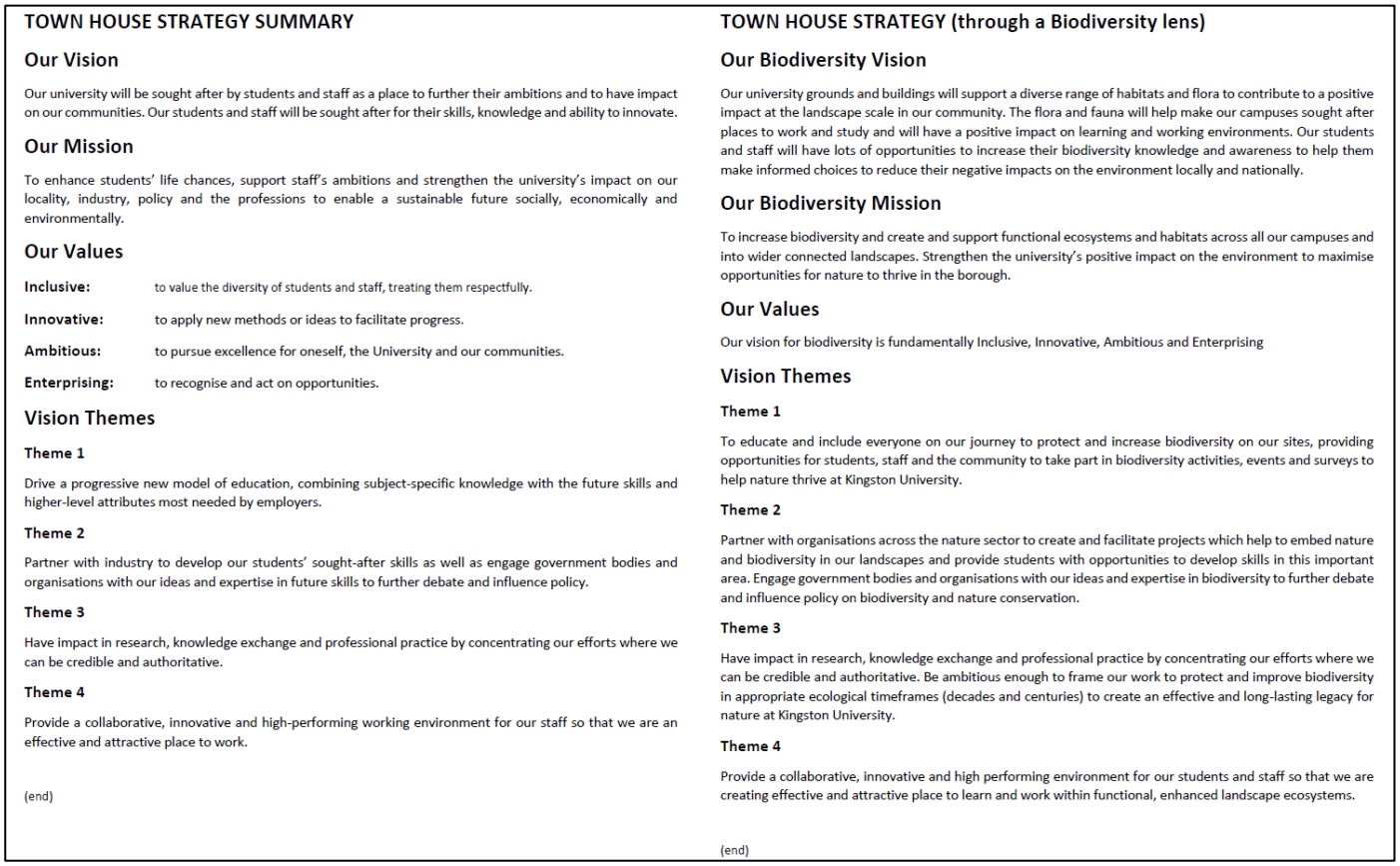
Factors affecting the action:

- Positive: Proper restoration, expansion and management of the orchard will ensure its health and longevity;
- Positive: The Dorich House curator is very much supportive of this project, as the orchard contributes to the historical story of the house and its former owner, Dora Gordine;
- Positive: The orchard project will not only raise awareness of the biodiversity of orchards, but also about other sustainability issues such as local food production;

- Negative: the objectives will take time to implement; and
- Negative: there are extra costs.

5. Biodiversity and the Town House Strategy

The work under the remit of Biodiversity sits within the wider KU Town House Strategy, the image below shows how the work matches our vision, mission and values.



TOWN HOUSE STRATEGY SUMMARY

Our Vision

Our university will be sought after by students and staff as a place to further their ambitions and to have impact on our communities. Our students and staff will be sought after for their skills, knowledge and ability to innovate.

Our Mission

To enhance students' life chances, support staff's ambitions and strengthen the university's impact on our locality, industry, policy and the professions to enable a sustainable future socially, economically and environmentally.

Our Values

Inclusive: to value the diversity of students and staff, treating them respectfully.

Innovative: to apply new methods or ideas to facilitate progress.

Ambitious: to pursue excellence for oneself, the University and our communities.

Enterprising: to recognise and act on opportunities.

Vision Themes

Theme 1

Drive a progressive new model of education, combining subject-specific knowledge with the future skills and higher-level attributes most needed by employers.

Theme 2

Partner with industry to develop our students' sought-after skills as well as engage government bodies and organisations with our ideas and expertise in future skills to further debate and influence policy.

Theme 3

Have impact in research, knowledge exchange and professional practice by concentrating our efforts where we can be credible and authoritative.

Theme 4

Provide a collaborative, innovative and high-performing working environment for our staff so that we are an effective and attractive place to work.

(end)

TOWN HOUSE STRATEGY (through a Biodiversity lens)

Our Biodiversity Vision

Our university grounds and buildings will support a diverse range of habitats and flora to contribute to a positive impact at the landscape scale in our community. The flora and fauna will help make our campuses sought after places to work and study and will have a positive impact on learning and working environments. Our students and staff will have lots of opportunities to increase their biodiversity knowledge and awareness to help them make informed choices to reduce their negative impacts on the environment locally and nationally.

Our Biodiversity Mission

To increase biodiversity and create and support functional ecosystems and habitats across all our campuses and into wider connected landscapes. Strengthen the university's positive impact on the environment to maximise opportunities for nature to thrive in the borough.

Our Values

Our vision for biodiversity is fundamentally Inclusive, Innovative, Ambitious and Enterprising

Vision Themes

Theme 1

To educate and include everyone on our journey to protect and increase biodiversity on our sites, providing opportunities for students, staff and the community to take part in biodiversity activities, events and surveys to help nature thrive at Kingston University.

Theme 2

Partner with organisations across the nature sector to create and facilitate projects which help to embed nature and biodiversity in our landscapes and provide students with opportunities to develop skills in this important area. Engage government bodies and organisations with our ideas and expertise in biodiversity to further debate and influence policy on biodiversity and nature conservation.

Theme 3

Have impact in research, knowledge exchange and professional practice by concentrating our efforts where we can be credible and authoritative. Be ambitious enough to frame our work to protect and improve biodiversity in appropriate ecological timeframes (decades and centuries) to create an effective and long-lasting legacy for nature at Kingston University.

Theme 4

Provide a collaborative, innovative and high performing environment for our students and staff so that we are creating effective and attractive place to learn and work within functional, enhanced landscape ecosystems.

(end)

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