Annual Sustainability Report 2017/18

Foreword

When we wrote our Vision and Strategy for the University in 2016, I was particularly keen that Sustainability played a key role in its delivery.

We have been successful to date, reducing carbon emissions by 27%, diverting 99% of waste from landfill and now run two bus services carrying over 750,000 passengers a year. This is against the backdrop of continued estate and student number growth.

Our ambitious plans for developing world class teaching and research facilities as seen at Temple Quarter continue the sustainability commitment, aiming to be low carbon and car free, as well as key assets for the local community in the city.

Our students are particularly engaged with sustainability, taking part in online courses as part of the Bristol Futures initiative and volunteering for a wide range of sustainable and socially impactful projects.

I'm pleased with the progress we have made, but know we still have many challenges on the journey to be a sustainable university.

I hope this inspirational report encourages us all to think again about how we can contribute to the building of a safe, sustainable future society. We owe it to our student body, who will live with the decisions we make, and the generations to come.

Hugh Brady

Vice-Chancellor and President

University of Bristol

Sustainability Report 2017/18

Key Performance Summary

- ISO14001 certification achieved covering all activities including education delivery.
- Absolute carbon emissions down by 27%. Relative to income/staff and student numbers, down by 50% from baseline year 2005/06.
- Sustainable Lab activity saved almost £150,000 throughout the year.
- Water consumption down by 25% from baseline year 2007/08.
- Staff commuting via single occupancy car journeys is 17%. Only 3% of students use a car to travel to lectures (meeting and exceeding our target of 4%).
- A new online car parking permit system was introduced to reduce time and cost in delivery of permits to staff.
- Student bus service carried 713,000 passengers, First Bus are now our bus service provider.
- We have a new mobile ticketing service for the bus saving costs related to smart card production.
- The University won the ‘Most Improved Workplace’ award in the Travelwest Business Travel Awards 2017.
- Waste for all staff and students equals 125kg/FTE. 84% of all waste is reused, recycled or composted. The rest goes to fuel or hazardous disposal, less than 1% of University waste goes to landfill. 6% of all waste is reused, up from 2.5% last year.
- 94% of construction waste is reused or recycled.
- Food waste disposed of via anaerobic digestion totalled 20 tonnes.
- Furniture reuse via ‘Re-Store’ amounted to 22 tonnes, avoiding £200,000 expenditure on new furniture.
- The Lab equipment reuse scheme utilised 25 tonnes of equipment.
- Halls recycling rates up to 56% from 51% in the previous year.
- The Bristol Big Give (end of term reuse scheme in student accommodation) reused 205 tonnes of materials and generated £350,000 for local charities.

- Procurement having achieved Chartered Institute of Procurement and Supply (CIPS) Corporate Ethics Mark certification and have continued with a program of ethical workshops.

- Whole Life Costing is being used within procurement tenders.

- A new supplier engagement tool to help put sustainability into our supply change has been used with 900 suppliers.

- The University has achieved Living Wage certification.

- BREEAM Excellent achieved for the Queens Building Extension and a Very Good award for 33 Colston Street.

- Rare birds continue to be present on the University estate including house sparrows, stock doves, nuthatches and bullfinches.

- Maintaining meadows has encouraged the presence of bees and other pollinators, leading External Estates and students from Roots Community Gardening to win the Bees Needs Champion 2018 national award.

- The university has maintained the Green Flag certification.

- 15 teams have taken part in the tenth year of Green Impact, with an unpresented 33 teams doing Green Impact Labs.

- The launch of a behaviour change scheme called Be the Change saw 600 members of staff take part, implementing 10,000 actions to improve their sustainability and wellbeing.

- Students were involved in several sustainability pop-up events working with local charities and campaigns including City to Sea and Keep Britain Tidy.

- The University has signed up to the Sustainable Food Cities: Going for Gold initiative.

- New Ways of Working was implemented among most professional services divisions, enabling more efficient use of University space.

- The University committed to disinvestment in fossil fuels by March 2020.

- New endowment investment managers started dialogue on several environmental and social issues with investment providers.

- The University declared a climate emergency, becoming the first higher education institution in the UK to do so.

Emissions, Discharges and Environmental Management System (EMS)

The University successfully passed an audit for ISO 14001:2015 in March 2018 (eighth year of holding ISO 14001) and completed the first year of operation of the new standard. The new standard now examines the University's output and not just its operation. The University has included Sustainability Through Education within this management system since 2012/13. This made Bristol one of the first Universities within the Russell Group and one of only a handful in the sector to do this. It also meant that the University was ready in advance for the new 2015 standard.

Sustainability continues to maintain an annually reviewed environmental legislation register available on our website which covers all emissions and discharges, providing assurance for pollution prevention and compliance with legislation.

The new ISO 14001:2015 standard provides the University with the opportunity to include additional sustainability criteria in the EMS over and above environmental considerations. This provides a framework for other strategic themes including Circular Economy, Sustainable Procurement, and Ethical and Sustainable Food.

Carbon and Energy Management

We have considered for this report the areas for which we have full operational and financial control. These are areas owned and leased by the University at which we contract and pay for fuel. This is the area considered by the government's Carbon Reduction Commitment. Estates Management Records now require us to also consider leased areas where we do not pay for fuel and or have maintenance control, including space within hospitals and leased accommodation. We have limited control over consumption in these areas.

From the table below we note that carbon dioxide emissions are 27% below the baseline, a lower reduction than the 17% noted in 2016/17.

This change is due to a combination of factors, including University energy efficiency measures and staff/student engagement activities.

Gas and electricity consumption, taken together, rose very little, which is positive in consideration of the fact that the Severn Valley region (from which we compare historical temperatures) saw its coldest winter in five years and the warmest July since our dataset with current methodology began in 2000. Warm weather affects electricity consumption greatly as it increases the demand for cooling.

Energy saving projects include a reduction in electricity consumption at Synthetic Chemistry of 450,000kWh a year from controls on Air Handling Units, on top of existing savings of 300,000kWh a year, from previous controls changes. Another success has been the further implementation of heat pumps at Stoke Bishop and at Dorothy Hodgkin's Building, saving 300,000kWh and 100,000kWh a year respectively.

Other factors include a significant national reduction in the carbon emissions from the use of electricity (decarbonisation of the grid).

Growth in the estate, and in staff and student numbers, continues to provide upward pressure on consumption. For example, Augustine's Courtyard has added about 300,000 kWh a year, and our off-site datacentre in Slough added 1,000,000 kWh.

	GridElec	Gas	Oil	Steam		Elec	Gas	Oil	Steam	CO2 (t)	Var
	GWh	GWh	GWh	GWh	Total	tCO2	tCO2	tCO2	tCO2	tCO2	
05/06	60.0	79.9	1.2	1.4	142.5	31,229	14,801	336	335	46,701	0%
06/07	55.2	77.4	0.6	0.9	134.1	28,630	14,329	167	207	43,333	-7%
07/08	56.8	85.1	1.2	0.5	143.6	28,969	15,753	320	124	45,166	-3%
08/09	57.8	86.4	0.9	0	145.1	30,146	16,000	259	0	46,405	-1%
09/10	56.3	87.4	0.3	0	144.0	29,767	16,187	95	0	46,049	-1%
10/11	56.5	84.0	0.4	0	140.9	28,520	15,552	108	0	44,180	-5%
11/12	57.5	81.6	0.3	0	139.4	28,425	15,111	81	0	43,617	-7%
12/13	57.8	94.5	0.3	0	152.6	28,246	17,436	70	0	45,752	-2%
13/14	60.6	81.0	0.3	0	141.9	31,226	14,957	75	0	46,258	-1%
14/15	62.1	83.6	0.3	0	146.0	31,020	15,413	55	0	46,488	0%
15/16	63.1	76.4	0.2	0	139.7	28,421	14,057	63	0	42,542	-9%
16/17	65.3	74.7	0.2	0	140.2	25,101	13,737	67	0	38,904	-17%
17/18	63.7	78.0	0.7	0	172.4	19,567	14,344	198	0	34,109	-27%

To account for the upward pressures of estates changes and operational activity, a key target of our plans is to reduce the total energy consumption per FTE at buildings over which we have operational control. The table below shows our progress on this.

	Total Energy GWh	Total Staff and Student FTE	kWh/FTE	% change from baseline
05/06	142.5	20,092	7,092	0
10/11	140.9	22,047	6,391	-10%
14/15	146.0	25,814	5,656	-20%
15/16	139.7	25,905	5,394	-24%
16/17	140.2	27,829	5,038	-29%
17/18	142.4	29,019	4,907	-31%

The New Carbon Strategy

The Sustainability Policy was renewed in 2017, and we redeveloped the Carbon Management Plan into a Carbon Strategy to address emissions in all of the University's space, including leased space, and to put us on a path to net zero emissions from Scope 1 and 2 emissions, measured by ISO 14064, by 2030, and to more effectively inventory and control our Scope 3 emissions.

The plan includes:

- Action to reduce costs
- Action to save energy by avoiding and reducing its use, as well as employing efficient equipment
- Action to reduce reputational risk and to satisfy funders and potential funders

- Linking the installation and implementation of measures with didactic opportunities for students and research opportunities for the academic community
- A focus on highly serviced areas
- Actions to increase our purchases of power and heat from lower carbon sources

Progress against our Scope 1 and 2 emissions since 2007/8, up to =2017/18, is as follows:

ISO14064	07/08	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
Scope 1	17,391	16,992	15,980	18,398	15,458	16,235	14,261	14,520	14,542
Scope 2	28,510	29,349	27,564	29,192	34,013	30,986	28,205	24,944	19,567
Total	45,901	46,341	43,543	47,590	49,472	47,221	42,466	39,465	34,109
FTE Staff & Student	20,849	22,047	22,246	23,722	24,530	25,814	25,905	27,829	29,019
tCO2 per FTE	2.2	2.1	2.0	2.0	2.0	1.8	1.6	1.4	1.2

Therefore, emissions are down from 2007/08 by 25% whereas staff & student FTE's are up by 49%. Emissions per FTE are down by 50%. Again, this is due to a sharp decrease in the carbon intensity of electricity, but efficiency and space optimisation have also played a key role.

From April 2017, we began to buy electricity for our contracted sites from UK wind farms via our supplier, EDF. We have a contract that will allow us to buy biogas at a premium.

Water

The University's water consumption in 2017/18 was only slightly higher than in 2016/17, at 25% below consumption in the baseline year of 2007/08, despite sharply rising staff and student numbers (over 4%) and increased activity.

	07/08	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
M^3	491,473	448,161	416,403	367,037	379,022	384,067	354,425	352,159	369,804
		-9%	-15%	-25%	-23%	-22%	-28%	-28%	-25%

In the last decade, many reductions have been due to the wholesale replacement of the ring mains at the Clifton Campus, Langford and Stoke Bishop.

The avoidance of tap water use for cooling electrical equipment is now a key strand of our water conservation and cost saving activity.

Sustainable Travel

Surveys

A staff travel survey will take place in late 2018, and a student survey was undertaken in February 2018. Student car use is at 3%, reaching and exceeding our target of 4%. Bus use has increased to 19% up from 16% and formal study at home has risen from 3% to 6%.

Bus Services

The new First Bus U1 service was launched in September 2017, comprising of new low-emission double decker vehicles with USB charging points and free Wi-Fi. The service carried a total of 713,000 passengers from September 2017 to June 2018, a slight decline on the previous year (1%) compared

to the service run by Wessex Buses. However, a key highlight is that overall satisfaction with the service increased dramatically from 75% to 91.8% with the new service. Punctuality also increased significantly. New mobile ticketing (mTickets) was also introduced which streamlined the dissemination of 7,000 bus passes to students and provided more efficient bus pass management. Those students holding a Unibus U1 bus year pass also had unlimited access to four other First Bus services linking the Clifton Campus with the City Centre, Bristol Temple Meads and other parts of the city.
Investigations into a U2 Langford Vet School service took place toward the end of this reporting period, resulting in the launch of a service to that location.

Car Parking
A new online car parking permit management system was introduced in June 2018. The new system enables all users to apply for a parking permit online and manage their parking coupon purchases. The system has resulted in time savings for all staff during the application process and for Security Services during the parking permit award periods, and has dramatically reduced the paper waste incurred by the older system. Compatible handheld devices have also been introduced to enable Security Services to improve parking enforcement and provide enhanced management information on parking operations.

Cycling
Investment has continued with the installation of 120 cycle parking spaces, raising the total capacity to 3,487 spaces, fortnightly cycle clinics attracted around 580 staff and students during the year and 57 members of staff purchased a bike in the Cycle to Work scheme. The successful Bicycle User Group membership increased by 9% to 1,851 members and continues to be one of the largest such groups of all Universities.

Car Sharing
The University's bespoke car sharing scheme, hosted by Liftshare, saw an increase of 17%, bringing the total membership up to 870. However, the total number of University car sharing parking permits issued to car sharing 'teams' during the main November 2017 allocation fell by 53% to 18 permits. Work is underway to improve the conversion rate from signing up to the website and applying for a car share permit.

Awards
The University won the 'Most Improved Workplace' award in the Travelwest Business Travel Awards 2017.

Circular Economy

The University of Bristol is adopting a Circular Economy approach to managing its resources. This offers potential cost savings as well as sustainability improvements, and redefines how our institution manages its resources, away from a linear model of 'make, purchase, consume and dispose'. This builds on work already done in the University around sustainable waste management, moving processes to align with the Waste Hierarchy as defined under the European Waste Framework Directive.

Sustainable Procurement waste prevention and reduction
Sustainable procurement best practice is key to our circular economy targets, as well as waste prevention and reduction. 'Whole Life Costing' models were developed during the year and are being rolled out through all tendering processes to ensure waste costs are considered in the process along

with other criteria. To date we have directly engaged with 950 University suppliers, mainly SMEs, to promote sustainability best practice including waste reduction initiatives through our Net Positive Futures Supplier Engagement Tool.

To help us manage avoidable waste through office moves as the University Estate expands, we introduced new guidance for staff on managing waste through office moves.

Waste per FTE was recorded at 125.616 kg this year. This figure includes all wastes produced, to achieve a holistic approach across the University and not just office wastes. We will continue to work towards reducing this number in 2018/19.

Recycle, compost, anaerobic digestion and reuse

The University reused, recycled and composted 84.32% of its total 'waste' resources, an increase on the 2016/17 figure of 82.37%. The remaining waste was used for energy from waste production or was sent to landfill (<1%).

Reuse increased significantly in 2017/18 with a total reuse of 6% (227,250 tonnes) compared to the 2016/17 total of 2.55% (90,430 tonnes), in line with our 8% target.

The University expanded the reuse website Re-Store that rehomed directly within the University 22.25 tonnes of reusable furniture compared to 12.43 tonnes in 2016/17. We also increased dedicated time to reuse activities by 100%. Of the furniture items donated to Re-Store, 96% (over 1000 items) were rehomed within the University with the remaining being donated to local charities. This activity equates to up to £200,000 in avoided costs for the University.

The Bristol Big Give campaign, of which the University is a partner, reused over 205 tonnes of student items in 2017/18, raising up to £350,000 for local and national charities.

In 2017/18 we improved how we manage waste electrical items, particularly unwanted IT equipment. The majority is now compliantly reused instead of being recycled, which is a more sustainable solution and helps us to manage our adherence to the waste hierarchy.

Recycling 'at source' is currently 54% for the whole University with our remaining recycling targets coming from post collection resource segregation. Recycling at source is an important target for us as this produces the best materials to aid closed loop recycling.

The amount of confidential materials shredded and recycled has increased consistently year on year as a result of better education, significant archive clearances through office moves and in 2017/18, GDPR regulations.

	13/14	14/15	15/16	16/17	17/18
Confidential waste collected for shredding and recycling in tonnes	80	130	160	174	216

This upward trend will focus our attention on a balance between managing our confidential and non-confidential media correctly and ensuring we adhere to our information security policies at the University.

We have seen an encouraging reduction in plastic waste produced at the University in last 12 months, representing 1% of the total waste stream by weight.

Food waste
Food waste is collected for disposal by anaerobic digestion and has increased over the last year from 17.8 tonnes to 20.6 tonnes, due to both estate expansion and increased staff and student numbers.

Construction waste
Current average recycling rates within construction projects are 94.6%, reuse rates are significantly lower at less than 2%. Sustainability will continue to engage with the University's construction programme embedding sustainable waste practices and sustainable procurement criteria, with reuse targets for larger build programmes.

Energy from waste
Waste that must be incinerated due to legislation or that is currently not captured for reuse, recycling, composting or anaerobic digestion is used to create energy from combustion. This is preferred to landfill under the waste hierarchy. This increased by 13% in 2017/18 compared to the previous year and reflects an overall waste increase and increases in laboratory activity with increased clinical waste production.

Landfill
Through Sustainable Procurement exercises, Whole Life Costing and market technology tracking, the University has been able to reduce avoidable landfill waste to less than 1% and maintain this for three years.

	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18
% waste sent to landfill	59.7	52.0	51.3	44.3	24.12	5.0	5.8	<5%	<1%	<1%	<1%

Hazardous waste

Up to 2011/2012 the University was increasing the proportion of waste incinerated due to changes in legislation, processes and increased laboratory activity. A plan was put in place to address this increase through better procurement, laboratory practices, collection services, training, and use of alternative technologies.

Chemical waste disposals have been increasing over the last few years partly due to better laboratory practices being put in place as well as clearance due to refurbishment and construction activities. This upward trend has started to reduce in 2017/18.

	14/15	15/16	16/17	17/18
Chemical waste in tonnes	31	45	65	63

Clinical waste has increased over the last year due to increased activity. The year 2016/17 produced 288.25 tonnes, however 2017/18 produced 329.13 tonnes. Plans are in place for 2018/19 to expand recycling collections for Category 1 laboratories and to reduce waste production through sustainable procurement practices.

Student waste
In 2017/18 our students reused or recycled on average 58.61% of their waste, a consistent increase on 56.49% in 2016/17 and 51.24% in 2015/16.

Staff waste and compliance training
The University CIWM (Chartered Institute of Waste Management) Training Centre trained 87 members of staff in Sustainable Resource Management in 2017/18. A further 37 members of staff were trained in spill response and more specialist areas of laboratory waste management, helping the University to run more efficiently and remain compliant with complex environmental legislation.

Sustainable Procurement

The University's Procurement Policy was reviewed and published in 2015 and incorporated sustainable sourcing. The policy and subsequent processes that followed work towards embedding into all tenders a balanced consideration of social, ethical, environmental and economic impacts as well as value for money.
Key achievements in 2017/18 include:

- Working more effectively with diverse and SME suppliers in line with EU public procurement regulations. The Procurement team led various BME engagement events within the local community and with SMEs. The team have also carried out further SME engagement, through West of England Partners in procurement events.
- The University is working with Sustainable Procurement experts Net Positive Futures. Using a supplier engagement tool, we have directly engaged with over 900 suppliers to date, the majority being SMEs, to facilitate collaborative working and enhance the environmental performance of our contracts.
- The University has committed to achieving Level 4 of the Flexible Framework by the end of 2018 and aims to achieve Level 5 by the end of 2019. The Flexible Framework is a widely used self-assessment tool for public sector organisations which allows organisations to measure and monitor their progress on sustainable procurement over time.
- All procurement tenders contain sustainability specifications as appropriate to the product or service being procured in line with industry standards including Whole Life Costing, Sustainability Impact Analysis and a life cycle analysis of activities. These processes will be internally and externally audited under the University's Environmental Management System ISO 14001:2015 and support the University's Circular Economy Strategy.
- The University's Procurement team have undergone CIPS ethical training as published on the Corporate Ethics Register, one of only two UK Universities currently registered. This shows a commitment from the University, in the last 12 months, to safeguard against unethical conduct in procurement and supply management.
- The University last updated its Modern Slavery statement in May 2018. The Sustainability Impact Assessment developed as part of the Net Positive Futures Programme provides a tool to highlight where there may be modern slavery risks in the tender process, allowing these to be proactively considered and managed.
- In November 2018 the University was awarded Living Wage Certification by the Living Wage Foundation.
- The Lab Circular Economy Steering Group was created, and is comprised of technicians, the Sustainability team, Safety and Health Services and Procurement. The following actions have been taken:
    - Glove recycling scheme trial has been implemented for integration with University-wide tender.
    - A cold storage 7-Lot tender specification has been developed.

Sustainable Construction

The Queens Building Extension received its BREEAM 'Excellent' certification, with 33 Colston Street receiving a 'Very Good' rating.

The new Library project and Temple Quarter Enterprise Campus development are both aiming for an 'Excellent' certification, with a separate sustainability brief being written for that project.

A new sustainability construction standard is being developed for the University during 2018/19. This policy area is delivered with the help of the Estates Capital Projects team.

Biodiversity

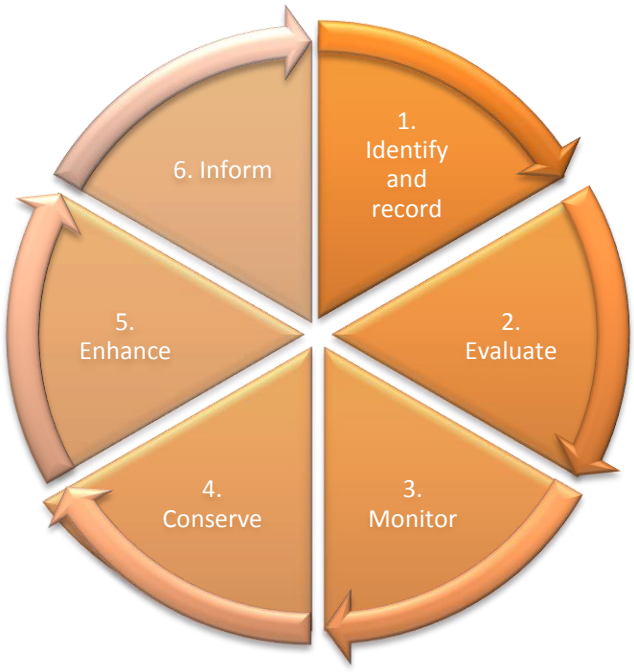
The following report attempts to capture the University of Bristol's Biodiversity strategy in six steps – see diagram below right.

Identify and record

As reported last year, the External Estates Team now has Phase One surveys covering all University sites. We were looking to purchase software in order to publish this information online in 2018. This has now been purchased. Due to technical difficulties the publishing function is not yet in place, however it will certainly be in place in 2019 (see 'Evaluate').

Wessex Ecological Consultants once again carried out key species monitoring during 2018.

Separately, ecological surveys were carried out and received for the potential building site centred on national grid reference ST583734 (New lecture theatre proposed for the back of David Smith Building). Development has not yet commenced.



An ecological survey was carried out and received for the 'Humanities Hub', centred on national grid reference ST581737. Development commenced in 2018 and mitigation for existing biodiversity is covered by BREEAM.

Evaluate

The mapping system, reported upon last year, is now fully developed and training is currently being undertaken. The new mapping system allows for analysis of all University landholdings, scalable from individual properties to entire sites.

Accurate mapping will allow us to manage habitats and evaluate biodiversity against space. In addition, mapping will enable us to better inform people about methodology and appraisals.

Monitor

Surveys of key indicator species were completed once again in 2018 for birds on three University sites (this is the fifth year running), following BTO Breeding Bird Survey techniques, and butterfly species at

Stoke Bishop campus (this is the third year running) using Pollard methodology as used by the UK Butterfly Monitoring Scheme.

The surveys conclude:
"The two species of bird recorded for the first time in 2017 were seen again in 2018. House sparrow was again seen around Clifton Hill House and a pair of stock dove again bred to the south-east of Wills Hall. Nuthatch, which is scarce in Bristol, was also recorded breeding in the same area."

"There is some evidence of declines in the numbers of the two gull species. Although both are often regarded as pests, their national populations, particularly the herring gull, are in steep decline."

"Numbers of other priority species were broadly in line with those recorded in previous years, with no clear trend and variations in numbers recorded generally within the range that would be expected, particularly since the number of visits is low. Bullfinch was recorded again at Stoke Bishop, following two years' absence."

"The rarest bird species that has been recorded during these surveys is firecrest, which was seen for the first time in 2018. A male was in song around the entrance to the Botanic Gardens on 9th May but was not seen or heard on 13th June. Firecrest has only ever been recorded breeding at one site in the former County of Avon, and this is the first time that even inconclusive evidence of breeding has been recorded in Bristol. The habitat here is very suitable for firecrest, which is frequently present in large gardens in parts of continental Europe. Other than maintaining a good range of both coniferous and broad-leaved trees around the gardens there is nothing that can be done to encourage this species."

For butterflies and other insects: *"Species recorded for the first time in 2018 of small copper and common blue were particularly notable.*

There was a slight decline of observations in 2018, but *"the striking increase in numbers recorded between 2016 and 2017 was largely, if not entirely, due to an improvement in the weather in 2017 following the very cold and wet summer of 2016. The decline in numbers from 2017 to 2018 was largely due to site-specific changes, namely that the meadows were mown before the June visit in 2018, whilst in the previous years they were mown much later. This would probably not have had an adverse impact on the meadows' flora (not mowing the vegetation, or leaving arisings to lie, would be far more damaging than an early cut) but it would be expected to be deleterious to many insects."*

"These changes suggest that mowing of the southern meadow in particular has led to a marked decline in the value of the area for butterflies. In particular one of the most notable species recorded, marbled white, was not seen here in 2018."

"Conversely, there has been an apparent increase in species associated with short grassland in the northern meadow, with significant increases recorded in numbers of small copper, brown argus and common blue. This is probably because topsoil was scraped off part of the field when the public artwork was installed. The area was sown with bird's-foot trefoil, the larval foodplant of common blue; it has been colonised naturally by dovesfoot cranesbill, the probable larval foodplant of brown argus here; and the bare soil probably creates the warm conditions favoured by small copper, whose larval foodplant, common sorrel, is present in the nearby grassland."

The report notes a *"dramatic increase in Hemiptera (bugs) in the northern meadow",* the reasons for which are not obvious. *"The decline in Odonata (dragonflies and damselflies) is interesting: these insects hunt over the grasslands and their decline is likely to be due to a decline in the biomass of*

insects in the two meadows; a similar trend is likely to have been experienced by other insectivores such as bats".

Conserve

As reported last year, the University is dedicated to conserving habitats for which it is responsible. Habitats are generally only at risk where they are impacted by development, and when this occurs Estates use BREEAM to identify the ecological value of the site and mitigate against losses and seek to increase species diversity through, for example, intensified landscape species or green roofs. The University maintains over 200 acres of parks and gardens. This figure does not currently include agricultural land at ≈ 450 acres, or sports grounds, however with the new mapping system this will now be added.

Where there is no development risk, the habitats are maintained to a high standard. For example, having been awarded a Green Flag in 2016, External Estates have retained it in 2017 and 2018. The Green Flag "recognises and rewards well managed parks and green spaces, setting the benchmark standard for the management of recreational outdoor spaces across the United Kingdom and around the world".

Enhance

In 2018 the University achieved a Bees Needs award for the Royal Fort site and, in particular the annual meadow introduced in 2017 and replanted in 2018. This award celebrates Green Flag Awarded sites that are making positive changes for pollinators.

New in 2017/18 are two dedicated Gardens and Grounds social media accounts to support engagement with staff, students and the general public. These can be found at https://en-gb.facebook.com/unibrisgardens/ and https://www.instagram.com/unibrisgardens/.

Inform

The Gardens and Grounds team continue to provide activities which attract local community groups, clubs and schools. Once again in 2018 the Bristol Naturalist Society ran several tree, fungi and bird identification walks, organised by External Estates, throughout University grounds.

Once again, the Botanic Garden ran a number of events (the Bee and Pollination Festival; the Ballast Seed Garden; and attended the Bristol Festival of Nature) in order to promote education about plant diversity.

This area of the policy has been delivered by the External Estates Team.

Staff and Student Engagement and Behaviour Change

A full communication plan was implemented for the academic year 2017-18, aiming to raise staff and student awareness on sustainability issues and what actions they can take to address these issues. The plan also addressed engagement with the wider community and third-level education sector.

Green Impact

This was the tenth year for of running Green Impact, the environmental accreditation scheme which awards University staff for improving the sustainability of their workplaces. This year saw 15 teams take

part covering around 5,000 actions. In addition, 7 'Excellence' awards were given to staff and their teams for special projects undertaken by them, including a new award introduced to celebrate the tenth anniversary – the 'Green Impact Team Leadership Award'. A joint awards ceremony was held in Wills Memorial Building with the two hospital trusts in the city.

Be the Change

A new points-based behaviour change programme was piloted for four months in 2018 aimed at individual staff, as opposed to the team requirement of Green Impact. The programme encouraged staff to complete sustainability- and wellbeing-related actions on a weekly basis, awarding points for each action. Prizes were given out to those who took part and achieved the highest scores. Over 600 members of staff took part in a trial over three months and undertook 10,000 actions. A post-pilot data review showed that engagement and new sign ups were continuous and consistent throughout the pilot. Following this success, the programme will be relaunched in February 2019 alongside a pilot programme for students.

National and international campaigns

Sustainability promoted and took part in several national campaigns such as the Great British Spring Clean and the Great British Beach Clean (read more in the case study below).
A number of activities also took place in conjunction with international campaigns and calls to action, including World Water Day, World Environment Day, Earth Hour, Earth Day and Fairtrade Fortnight.

Social media

The University of Bristol Sustainability Facebook page more than doubled its audience from 114 followers in September 2017 to 353 followers by the same date in 2018. Its most successful content during this period reached over 5,400 people and gained over 2,300 engagements (clicks, comments, shares and reactions).

Similarly, the University of Bristol Sustainability Twitter account's audience increased from 225 in September 2017 to 398 in early September 2018. The most successful month in this period was March 2018, during which a team of University student volunteers took part in a city centre litter pick for the Bristol Clean Streets campaign run by Bristol Waste. Tweets around this activity reached a total of 36,500 users, gaining favourable attention and feedback from community partners and groups including Bristol City Council, Bristol Waste and Bristol 24/7.

Following extensive audience research carried out in 2017/18, it has been found that the audience across these accounts is majority 18-24 in age, indicating that these are a valuable tool for engaging both current prospective University students. The Sustainability social media accounts have proven effective in opening a dialogue among University staff and students to share ideas and discuss areas of concern, and also have the potential to act as a recruitment tool if shown to be engaging prospective students. The most notable advantage of the continuing increase in social media audiences and engagement is that this is a direct result of organic reach, and not paid-for or sponsored content – this continues to be one of our most cost-effective methods of communication.

Following an Ofcom research report on adults' media use and attitudes published April 2018 indicating a trend away from Facebook and Twitter among young adults, the Sustainability team is now in the process of developing an Instagram account to more effectively visually showcase the University's sustainability activities to both current and prospective students.

Newsletters

A new monthly Sustainability newsletter has also been established. Using Mailchimp to build a template and mailing list, the audience for this newsletter has grown from 60 subscribers in December 2017 to

261 subscribers by September 2018. The newsletter has achieved an average open rate of 53.85%, far exceeding the industry average of 16.98% and analytics reports provided by Mailchimp indicate that this has proven to be a valuable platform for showcasing sustainability news, events and opportunities to staff and students across a wide a range of disciplines and backgrounds.

Case study: Waste and recycling pop-up events

Between the months of February and April 2018, five waste and recycling pop-up events were hosted across campus. Two took place in Unite Halls of Residence (Chantry and City Centre Riverside), one at Goldney Hall and two others on Tyndall Avenue. Four of the five events worked in collaboration with Bristol Waste and provided students with fun and engaging ways to discuss their recycling habits.

Bristol Waste brought along 'Waste Connect Four', a game that encouraged students to separate waste items into those that could and could not be recycled, testing their recycling knowledge. Students were particularly attracted to the aluminium bale game, whereby students were asked to guess the number of cans in the bale in a bid to win a KeepCup or steel water bottle.

For the halls that had a high number of Mandarin Chinese speakers, a bilingual student volunteer assisted to ensure communication was as accessible as possible to all involved.

City to Sea

Another campaign run in March saw Sustainability join forces with the Bristol-based charity City to Sea. Their 'Refill' campaign is a free tap water initiative designed to reduce plastic pollution by making it easy to refill a reusable water bottle across the city, and throughout the UK.

To promote their message of single use plastic reduction and to highlight the numerous water fountains located around campus, a competition for a student to win a reusable water bottle was launched on World Water Day. They could enter by posting a refill picture and using the hashtag #refill. The campaign was promoted around campus by student volunteers who pinned up posters and handed out flyers ahead of the launch. The Cabot Institute and University Sustainability further supported this via their social media platforms.

Ahead of the competition a water fountain audit was carried out to highlight any repair issues. A map of the main and most accessible water fountains was created and added to the Sustainability webpage, making it as easy as possible for students to find at a glance.

Two students won a water bottle each for their comedic refill take of the famous *Ghost* pottery scene.

Since the campaign launched, the University's publicly accessible water fountains have been added to the City to Sea app, which maps all the water refill stations near user's location.

Litter Pick – Keep Bristol Tidy

In collaboration with the national Keep Britain Tidy campaign, and as part of their Great British Spring Clean, Sustainability organised a student litter pick. A student volunteer group spent the afternoon of Wednesday 7th March collecting litter in Bristol City Centre. This event worked in collaboration with Bristol SU, and with Bristol Waste who provided the litter picking kits and collected the final litter bags. The volunteers collected an impressive 22 bags of litter. Feedback following this event was positive - students expressed a desire for more of these events and felt a benefit in being able to see that they were making a meaningful contribution to the community.

Sustainable Science

Laboratories at Bristol University account for 40% of our energy and waste budget as well as 32% of our annual water bill, but only occupy 6% of our space, equating to just over £3 million annually.
The Sustainable Science initiative in 2017/18 helped realise savings of £149,271 coming from energy, water, waste and procurement projects, although there may be further financial savings from value added, staff time saving and space efficiencies. These cost and consumption savings can be seen in the table below.

	Energy		Water		Waste		Other*
	kWh	£	m^3	£	tonnes	£	£
15/16	755,927	73,325	0	0	0	0	39,699
16/17	479,845	46,545	14,150	28,300	1.5	750	N/A

17/18	794,845	77,100	24,990	49,980	25.4	12,000	10,191
Total yearly savings	2,030,617	196,970	39,140	78,280	26.9	12,750	49,890

*procurement, space, staff time etc.

Lab Energy, Carbon and Water Management

Project include:

- Green Grants for equipment replacements have saved ~£2k per year.
- Chilling up (raising the temp. from -80℃ to -70℃) ULTs save on average £120 per unit. Another 23 units chilled up incurring savings of £2,100 per year.
- Fume cupboard upgrades in Synthetic Chemistry (Smart Labs Stage 1) has saved £73k per year (750,000kW).
- Water costs avoided by replacing tap-to-drain cooling with recirculating chillers saved another £49,980 (24,990m^3) per year.
- Four energy surveys: Churchill, Langford Vet School: (building fabric, HVAC and equipment/management), Animal Husbandry Unit, Langford Vet School (building fabric), Dorothy Hodgkin Building (strategy services review).

Lab Circular Economy

Projects include:

Reuse

- An equipment and lab furniture reuse service has diverted 25.4 tonnes of electrical waste for reuse externally, the equivalent of 20.6 tonnes carbon dioxide eq. Total rebates will exceed £10,000. University staff time savings are currently £4,190.63,127m^3 of lab space recouped from equipment collected (based on item dimensions).
    - Freecycle in Biomedical Sciences Building – 19 units rehomed internally saving £6k from not purchasing new, freeing up over 180m^2.
- Lab Circular Economy Steering Group – a glove recycling scheme is being trialled in Translational Health Sciences, Bristol Medical School and Histology Teaching Labs, School of Physiology, Pharmacology and Neuroscience. So far 25kg of clinical waste has been diverted. This will grow once teaching labs are included.
- Laboratory exit and move procedures have been developed and launched in two schools with the objective of reducing clinical and chemical waste and saving on equipment procurement costs.
- Pro-curo (cold sample tracking and inventory system) pilot successful: Lab users received training and software is available for campus roll-out. Ultralow temperature freezer rationalisation was 30-50% saving 6185kWh (£600).

Lab Staff and Student Engagement and Behaviour Change

- The Sustainable Labs Network meets termly and has grown to 42 members, with 25 Sustainable Labs Leaders across the University. The group collaborates on University-wide projects. The Sustainable Labs Network enables two-way communication between Sustainability and the science community. This is maintained through an online forum and termly meetings and empowers staff to make real change in our University by identifying and implementing new initiatives.
- Resource creation: guidance documents, best practice guides, posters, stickers, brochures.
- Green Impact Labs awards scheme: The number of teams doubled this year with 33 labs graining Green Lab Accreditation. This scheme increases collaboration across the campus and enables behaviour change in labs, as well as improved but non-quantifiable water, energy and

waste management. Student interns and 18 student volunteers took part in the scheme, working directly with academic and technical staff to audit and support their accomplishments. The awards ceremony took place in conjunction with the annual Technical Conference.

- An ongoing Sustainable Science student internship is in its third year showing great success. Offering paid internships improves the student experience and collaboration between our staff and student body, which is unusual in science research. Their aim has been to manage Green Impact Labs but the role has recently developed to manage other campaigns, waste management schemes and lab operation initiatives.

Lab Research and Knowledge Transfer

- The University of Bristol hosted the S-Lab Conference in September 2018. The conference was attended by 400 delegates from the international science community. University of Bristol Green Labs presented *'Growing a Sustainable Labs Initiative at the University of Bristol – A Green Lab Accreditation programme and environmental champions*.' The University also co-presented equipment case studies at Lab Innovations.
- The Sustainable Labs Officer coordinates the Laboratory Efficiency Action Network (LEAN), a group of UK universities with equivalent sustainable labs initiatives (30 institutions, 62 members). The network consists of an online forum and bi-annual meetings. In the past year the group has achieved:
    - a standardised, national sustainability framework for lab accreditation, LEAF (Laboratory Efficiency Assessment Framework). This will be piloted in 2019.
    - A circular economy group which includes procurement professionals who are working to implement standardised labelling for lab consumables and equipment.
- Case studies were developed with an external consultant on chillers, ultralow temperature freezers and LED microscopes. These have been published and are available to the wider community.

Lab Sustainability through Education

- The first University Sustainable Science 'Living Lab' was undertaken for a master's thesis within our MSc Climate Change Science and Policy. They produced a report titled 'Recycling or reusing laboratory equipment: Lifecycle assessment comparison of end-of-life scenarios'.

Sustainability through Education (StE)

Delivery of StE is via the Bristol Futures initiative. This promotes interdisciplinary learning aiming to embed learning relating to three core themes into the curriculum: Innovation and Enterprise, Global Citizenship and Sustainable Futures.

The initiative looks to introduce each theme via an online course, followed by integration of the themes into open units, leading ultimately to integration into to all taught courses. On top of this is the development of graduate attributes and skills (via a skills framework), personal development planning (PDP) and 'learning by doing', mainly via volunteering.

During 2017/18:

- The Bristol Skills Framework was developed setting out what the University saw as the attributes its graduates should have.
- The PDP process for students was started.
- A new engagement opportunities platform was launched to promote volunteering opportunities.

- Skills Bridge continues to link community-based research projects with students looking to undertake these projects as part of their course or volunteering activity.
- The Bristol Futures online courses launched in January 2018, with 287 students undertaking the Sustainable Futures course, followed by 193 in June 2018 and 358 in October 2018. The course has had significant uptake outside of the University, with over 5000 learners undertaking the course in January 2018 alone.

Other activities during 2017/18 include:

- Presentation of Sustainable Futures (SF) to the SevenOaks School, 200 students of lower sixth: The purpose was to discuss environmental issues and challenges from the SF perspective. SevenOaks is a school whose graduates mostly target Oxford/Cambridge, so the presentation wanted to highlight the Bristol Futures (BF) initiative and University of Bristol as a sustainability hub.
- Using SF to deliver lectures for the Adriatic Ecology Course in Croatia: This course targets undergraduates and postgraduates seeking to gain hands-on experience working in the field while learning about sustainable development. Participants in this programme are international students from high achieving colleges and universities (Cambridge, Greenwich Academy for Girls etc).
- Access Bristol: Using SF to attract students from non-privileged backgrounds to the University.
- Catalyst Bootcamp: Presentation of SF/BF girls aged 16-18 with a particular interest on environmental and equality issues.

Ethical and Sustainable Food

The University developed an Ethics and Sustainability Catering Food Policy and Procurement Strategy and a Catering Food Waste Policy in 2017 which set out targets and commitments for the University. These policies include the following:

- A commitment to support Fairtrade and the Southwest Fairtrade Network. The University has signed up the NUS Fairtrade University and College Award with a range of sustainability champions within the University engaged in this two-year programme. All new suppliers are vetted according to the TUCO agreement including ensuring sustainability and Fairtrade credentials.
- The University has signed up to the ‘Sustainable Food Cities’ Going for Gold award. This aims to show best practice for all aspects of food procurement, preparations and waste management and engages with growers in the community and through the student population.

In addition to larger commitments we continue to ensure the following:

- Coffee is Fairtrade and Rainforest Alliance accredited.
- All eggs are free range.
- All milk is organic.
- All meat is Red Tractor certified.
- All fish is sourced from Marine Stewardship Society approved suppliers.
- Delivered catering has increased its Vegan offering by 10% in 2017/18.
- Catered halls have increased their vegetarian and vegan options by 100% in 2017/18.
- 91% of products containing palm oil are from sustainable sources.

- Plant Mart Accreditation for major food suppliers.
- Waste catering oil is remanufactured to a biofuel.

The University supports the City to Sea Campaign and the RAW Foundation through free water refill points and sales at cost of reusable BPA free stainless-steel water bottles.
Onsite bottling of water continues to reduce transport-related carbon emissions. New water fountains have been introduced to promote use of tap water over disposable bottled water and where disposable bottled water is sold it is LIFE water which supports 'Drop4Drop' clean water projects.

Retail outlets continue to sell reusable KeepCups at cost to staff and students to encourage reuse and to reduce disposable packaging. Where disposable packaging is retailed it is made of Vegware, a compostable alternative to plastics.

Responsible Investment

The University committed to disinvesting in all fossil fuels investments in March 2018 within two years. Currently the University has £2 million invested in companies which support the fossil fuel industry.

The University has also been actively managing the wider impact of the Endowment Fund investments on climate change. Embedded carbon in fossil fuel reserves associated with the Endowment Fund investments have decreased by 78%, from 280,742 to 62,289 tonnes of greenhouse gases, since the University announced a new investment policy.

The University is working with its endowment investment managers, Rathbones Greenbank Investments to deliver ethical and sustainable investments. As well as working on reducing the fossil fuel and carbon intensity of its investment portfolio, Rathbones has also been involved in dialogue with relevant organisations on deforestation, palm oil, adult content, defence, living wage and modern slavery.

Space Utilisation

The New Ways of Working programme for Professional Services has been rolled out to Augustine's Courtyard, 31 Great George Street, 1 Cathedral Square and 5 Tyndall Avenue, with 1-9 Old Park Hill expected soon. The targeted 10m^2 per FTE is on target. The scale of this change is unusual within the sector.

The benefits of improved space utilisation for staff and New Ways of Working, including flexibility, an improved work/life balance and collaboration, will be assessed in the coming years.

An academic space standard has been drafted during 2018. This is yet to be approved, but the aim of reducing oversized single occupancy offices has started with new offices in the Humanities Hub and Temple Quarter Enterprise Campus being designed to smaller than 15m^2.

Further space utilisation objectives are being developed during 2018/19 and these will be included within the emerging Estates Strategy.

A key for a future space strategy will be the utilisation rate of 35% and how this can be improved.

What next?

- Carbon and cost reduction projects, including lighting, ventilation and lab equipment replacement focused on our top 8 energy consuming buildings.
- Delivering Procurement tools to ensure Whole Life Costing is effective in reducing costs and enhancing sustainability in the supply chain.
- Circular Economy actions pushing our reuse activity to be a first choice rather than using virgin materials, again reducing costs.
- Expansion of staff and student engagement programs like ‘Be the Change’.
- Supporting and promoting student opportunities to learn about sustainability through volunteering.
- Expansion of the Bristol Futures initiative.
- A new Bristol standard for sustainable building design and place.