**Linnean Society Carbon Action Plan**

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# Scope

The Carbon Action Plan outlines how the Linnean Society currently consumption of resources and subsequent carbon production. To address the recently declared planetary emergency, the Society is committed to Net Zero (with offsets) by 2022, and to halving our carbon emissions or less by 2030.

Although our main aim is to become Net Zero by 2030, carbon emissions alone do not cover all aspects of being an ethical and sustainable organisation. Considering the importance of the planetary emergency, the Society considers other components of reducing our negative impact on the planet within this scope.

**Net Zero Definition** - Net zero means that the total greenhouse gas (GHG) emissions would be equal to or less than the emissions removed from the environment. (<https://www.ons.gov.uk/economy/environmentalaccounts/articles/netzeroandthedifferentofficialmeasuresoftheuksgreenhousegasemissions/2019-07-24>)

## Planetary Emergency

The perfect storm of the planetary emergency of climate change and biodiversity loss, coupled with the unpredictability of disease emergence, has profoundly changed our lives. To better contribute to transformative global solutions, and to further our vision of a world where nature is understood, valued and protected, Council resolves to use the unique platform of the Society to highlight, communicate, and facilitate action addressing the impacts of the planetary emergency on our natural world.

*The Linnean Society agreed a Resolution at its Anniversary Meeting on the 22nd May.*

## Personnel involvement

**Linnean Future committee**

A committee has been assembled to approach the planetary emergency, and look at what the Society can do to help tackle the issue. The name Linnean Future was selected by Fellows in December 2020. The committee has outlined four areas of work, which include:

* **Practicing what we preach** – improving the sustainability of ways of working in the Linnean Society
* **Research in action** – supporting collaboration and research addressing the planetary emergency
* **Sharing our expertise** - ensuring the Society acts as a forum and focus for scientific debate, practical discussion, and policy advice at a national and global scales regarding biodiversity in the planetary emergency.
* **Inspiring action** - Engaging and involving the public in debate and learning.

The Carbon Action Plan falls under this first area of work, practicing what we preach.

**Staff members**

Many of the actions outlined below are a team effort and will involve multiple staff members. Key staff members include:

* Office and Building Manager who will be working with suppliers, on building improvement, and carbon reporting
* Events and Communication manager who will be covering communication to Fellows and Public via the website, blogs, and events.

## Ethical investment policy

The Society has an Ethical Investment Policy which seeks to minimise and ideally eliminate irresponsible corporate behaviour. The Society positively supports investments in well-managed companies that are ethically, environmentally and socially responsible. The Society expects to take account of social, environmental, ethical and governance considerations in the selection, retention and realisation of investments. This includes consideration of key issues such as: climate change, biodiversity, labour standards, human rights, racial or sexual discrimination, public health, corporate governance, executive pay and business ethics.

The Society will not intentionally invest directly in organisations with high exposure to activities or substances which are injurious to health, destabilise community cohesion, threaten international stability or contribute to the development and maintenance of poverty, the abuse of children and the use of torture or in organisations that are clearly subsidiaries or closely linked to the organisations.  The Society encourages its investment manager to raise issues with organisations in which it invests, to raise standards.

## New Burlington house lease

Another major consideration is the uncertainty around our future at Burlington house. Improvement works on the building have been on hold due to this situation. We should also consider that with a new facility comes the possibility for a greener building, as our Heritage listing does create some limitations.

# Current Consumption

## Electricity and Gas usage

Our facility does consume a large quantity of electricity and gas, however staff are proactive about reducing this amount where they can with behavioural measures, such as turning out lights when not in use.

The Society recently installed a new boiler at Burlington house in September 2019, we have quickly seen a reduction in our gas consumption with the use of the more efficient equipment. The Society currently uses British Gas as a supplier for these utilities, but is investigating a greener more ethical company when contracts are up for renal summer 2021.

Please note data is missing from Toynbee house in 2018 as the Society transferred to a different supplier in September 2018.

## Waste production

The Society produces an average of 730 bags of general waste to landfill a year. Bin bags of 50 litres are used and each full bag is approximately 0.05 m3 of waste. This waste is primarily from our room hire and catering activities, for example during a day meeting 5 bags of waste can be produced.

**Recycling**

The Society recycles through First Mile, our purchasing of recycling bags is outline in the table below. Similarly recycling bags can contain 5kg of waste, which is approximately 0.05 m3.

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of waste** | **2018** | **2019** | **2020** |
| Glass Bags  | 60 | 40 | 40 |
| Paper Bags  | 75 | 75 | 100 |
| Mixed Recycling Bags  | 75 | 125 | 100 |
| Cardboard stickers  | 50 | 100 | 150 |
| Coffee cups  | 0 | 0 | 25 |
| **Recycling total** | **260** | **340** | **455** |
| General waste Bags | 646 | 643 | 260 |
| **Volume of waste** | **45.3 m3** | **49.15 m3** | **35.75 m3** |

## Staff Travel

Distance travelled (miles) - this travel does not include daily general commuting.

The BioMedia Meltdown project has been using a courier and an additional assistant since the beginning of 2018, which has contributed to the increase in staff travel. The collection team also completed trips to New York in 2018, which greatly increase air travel for the year.

This travel included a total of 67 days in accommodation in the last 4 years, however 24 of those are in tents rather than hotels. Hotel accommodation has been include in the carbon footprint calculation.

## Publications

The Society produces several publications each year:

* Scientific Journals
* Linnean – Fellows publication
* Pulse – Fellows publication
* Anniversary meeting Agenda – Information leaflet, sent out to Fellows with Pulse
* Event Brochure – Information leaflet, sent out to Fellows with Pulse
* Annual Review – Information leaflet, sent out to Fellows with Pulse

Due to a steady increase in Fellows, the print runs for The Linnean, Annual Review and Anniversary Meeting Agenda have increased each year. Each year we work towards getting more email addresses/more FLS to receive the online version of Pulse to reduce the number being posted. The Society also moved to using a biofilm for our wrappers, made from sustainably sourced potato and maize starch, in Dec 2018.

In 2018 both the Zoological Journal and Biological Journal moved to online only, though three reference copies are still produced for the Library and a small number are printed for institutions and Fellows still wanting hard copies. Only the Botanical journal is still printed in larger numbers, and this is predominantly for some institutions in Japan. There are conversations to also take this publication online next year.

In 2020 we also produced a new L:50 book, printing 1000 copies. We have also produced copies such as History of Natural History and Letters to Linnaeus in previous years.

|  |  |  |  |
| --- | --- | --- | --- |
| **Publication Weight**  | **2018** | **2019** | **2020** |
| Linnean | 862500 | 900000 | 915000 |
| Pulse | 138750 | 131250 | 90000 |
| Journals | 0 | 0 | 0 |
| Anniversary Meeting Agenda | 145000 | 150000 | 150000 |
| Event brochures | 150000 | 150000 | 0 |
| Annual Review | 450000 | 472500 | 480000 |
| L:50 | 0 | 0 | 629000 |
| **Total Grams** | 1746250 | 1803750 | 2264000 |
| **Tonne**  | **1.74625** | **1.80375** | **2.264** |

## Water consumption

Collecting data on our water usage has proven quite difficult, as meter readings have been inconsistent. We have used the measurement of 1000 cubic metres annually, which is an average of consumption since 2017. Meter readings will now be collected very quarter starting January 2021.

The Society stopped providing plastic water bottles for room hires in 2018, replacing this function with reusable jugs. There are 4 drinking fountains located in the building for staff and visitors to use.

|  |  |  |  |
| --- | --- | --- | --- |
| Year | BH Mains | TH Mains | Water fountains (Litres) |
| 2018 | 1000 | 1000 | 71 bottles \* 18.9L = 1341.9 |
| 2019 | 1000 | 1000 | 90 bottles \* 18.9L = 1701 |
| 2020 | 1000 | 1000 | 23 bottles \* 18.9L = 434.7 |

## Other consumption

**Light bulbs -** Where possible, we have been replacing light bulbs with LED as they need replacing since the beginning of 2019.

**Paper and Stationery -** We purchase recycled paper, and all stationary is purchased through Viking. Since 2017 we have purchased 178 packs of A4 paper and 10 packs of A3, a total of 89000 sheets of A4 paper and 5000 sheets of A3. This is an average of 22,250 pieces of A4 paper a year.

**IT –** We currently use OneDrive as our Cloud storage, which is growing in the wake of moving online in 2020. We are working on calculating carbon produced from this storage.

# Footprint Calculator

A personalise Linnean Society Carbon Footprint Calculator has been created, and is based on the principle of Report, Reduce, Offset.

Carbon emissions are calculated by collecting consumption quantities, as seen in previous section, and multiplying these by a conversion factor.

**GHG emissions = activity data x emission conversion factor**

The Society uses the conversion factors provided by the UK government, found at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020>.

The emissions are separated into three scopes:

* Scope 1: direct emissions of CO2 (kg) annually from fuel combustion.
* Scope 2: indirect emissions of CO2 (kg) annually from purchased electricity.
* Scope 3: other indirect emissions of CO2 (kg) annually: for example, transport-related activities in non-owned vehicles (excluding staff commuting travel), national grid transmission and distribution, outsourced activities, water, waste disposal.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Total emissions (Scope 1)** | **Total emissions (Scope 2)** | **Total emissions (Scope 3)** | **GRAND TOTAL kgCO2e/year** | **Tonnes CO2e annually** |
| 2018 | 38017.17 | 20649.67 | 8714.42 | 67381.26 | 67.38 |
| 2019 | 30540.98 | 19412.31 | 7649.09 | 57602.38 | 57.60 |
| 2020 | 22575.93 | 9284.80 | 5397.70 | 37258.43 | 37.26 |
| 2021 | 7603.76 | 2675.51 | 230.09 | 10509.37 | 10.51 |

For further details on these calculations and the data on Society consumption, please see Sustainability report or discuss with Office and Buildings Manager.

## Offsetting our Carbon

Offsetting the carbon produced by the Society is a very manageable approach to dealing with our emissions. Linnean Future is discussing some offsetting principles to guide the Society in its choice of effective and economic offsetting schemes. We will approach Council later in the year with these guiding principles and recommendations for budgetary allowances.

There are a variety of offsetting schemes available. The 2020 figure in the document UK Government price for CO2 for policy and appraisal <https://www.gov.uk/government/collections/carbon-valuation--2> appears to be around £14/tonne CO2e in 2020 using Table 1 of the 2018 update. At this stage we recommend using a range of £10 to £20 a tonne in financial calculations.

The Society is conscious that offsetting is not necessarily the only solution to the current planetary emergency, and will also be aiming to reduce our emissions not simply offset them.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **GRAND TOTAL kgCO2e/year** | **Tonnes CO2e annually** | **Offsetting @ £10****/tonneCO2e** | **Offsetting @ £20****/tonneCO2e** |
| 2018 | 67381.26 | 67.38 | £673.81 | £1,347.63 |
| 2019 | 57602.38 | 57.60 | £576.02 | £1,152.05 |
| 2020 | 37258.43 | 37.26 | £361.19 | £722.37 |
| 2021 | 10509.37 | 10.51 | £105.10 | £210.20 |

# Plan of action

The current plan of action or carbon action plan aims to:

1. Reduce consumption
2. Partner with greener more ethical companies
3. Replace use of harmful products and practices with less environmentally harmful
4. Improve reporting and staff involvement
5. Offset our carbon through an agreed appropriate scheme from 2022, with a view to this amount reducing by at least half by 2030.

## Changing suppliers

There are several suppliers we can change to more ethical options:

**Gas and electric** – we currently use British Gas but there are other great options out there and our contracts are up for renewal summer 2021.

**Stationery** – We currently use Viking and Amazon for our office supplies, but there are more sustainable companies available.

## Altering processes

Reduce printing as part of our membership administration, this will be facilitated by the new CRM system.

Send meeting minutes and papers electronically rather than printed. This process has already been started during 2020 where most meetings were taken online.

## Upgrade technology

One of the main consumers of electric is the air handling units for the collections. There are more efficient models out there but there are also smarter ways of controlling the environment in the building.

## Staff Involvement

Staff are generally on board with this initiative already. Making them part of this process will improve their investment in the action plan, and help identify improvement to processes we have not yet seen. An education session will show the societies dedication to this cause, ensure all staff on the same page, and improve the likelihood of success.

## Reporting

The carbon footprint calculator will be kept up to date and included in the office quarterly report, data on the website page will also be kept up to date. The annual report will also provide the opportunity to report on the past year. Staff will be required to report on their consumption and travel more than they have been in the past.

## Action status

|  |  |  |  |
| --- | --- | --- | --- |
| **Action**  | **Aim** | **Outcome** | **Status** |
| Removal of water bottles | 1+3  | Reduced plastic consumption and waste production | Completed – 2018 |
| Replaced plastic with biofilm for our publications wrappers | 1+3 | Reduced plastic consumption and waste production | Completed - Dec 2018 |
| Replace outdated boiler with new model | 1 | Reduce gas consumption  | Complete – August 2019  |
| Provide additional recycling facilities on site (coffee cups) | 1+3 | Reduced waste to landfill  | Complete – August 2019 |
| Take meeting note online to save printing paper | 1 | Reduced paper consumption | Completed – March 2020 |
| Provide online access to meetings to reduce travel to London | 3 | Less travel to site results in less emissions produced by visitors  | Completed – March 2020 |
| Choose a green ethical cleaning company for deep clean | 2 | Reduce harmful chemicals in waste water | Completed – August 2020  |
| Create carbon footprint calculator | 4 | Better understanding and reporting of current emissions | Completed – January 2021  |
| Create Linnean Future webpage  | 4  | Better reporting to our Fellows and the public  | In progress – booked 3rd March 2021  |
| Take membership admin online  | 1 | Reduce paper consumption | In progress – new CRM Feb 2021  |
| Changing suppliers for gas and electricity | 2 | Increase use of sustainable energy sources | In progress – June 2021  |
| Changing suppliers for stationary | 1 + 3 | Increase use of sustainable products and reduce plastic consumption | In progress |
| Reduce waste streams from catering | 1 + 3  | Increase use of sustainable products and reduce plastic consumption | In progress |
| Identify carbon offset principles | 5 + 4 | Ensure partnering with ethical company and managing emissions effectively | In progress |
| Transfer to eco cleaning products where possible | 3 | Reduce harmful chemicals in waste water | Not yet started |
| Analyse IT equipment for suitability and improvements | 2 + 3 | Increase use of sustainable products and reduce electrical consumption  | Not yet started |
| Upgrade collections store items of plant | 1 | Reduce gas and electrical consumption | On pause until Building lease situation is resolved |

# Timeline

The Society will seek to reduce our emissions to at least 25 tonnes/year if not even lower by 2030. Any unavoidable carbon emissions will be offset using a set of agreed offsetting principles that will guide the Society in its choice of effective and economic offsetting schemes. Offsetting carbon emissions will commence financially 2022, covering the carbon produced in 2021.

It is noted that 2020 was an unusual year in many ways, and it is therefore recognised as abnormal to the Society’s general trend.

# Summary

* **Report** – A detailed analysis of our carbon production has been completed, in a Society specific carbon footprint calculator. This information will be made available to our Fellows and the general public through the new planetary emergency website page.
* **Reduce** – Our action plan outlines how the society intended to reduce the identified emissions. The actions required will take staff time and resources, this plan aims to work in conjunction with the ethical investment plan and other building projects.
* **Offset** - The Society will seek to reduce our emissions to at least 25 tonnes/year if not even lower by 2030. Any unavoidable carbon emissions will be offset using a set of agreed offsetting principles that will guide the Society in its choice of effective and economic offsetting schemes.