



Summary of the Environmental Profit and Loss report - measuring the University's environmental impact

A summary of the analysis carried out by Isobel Taylor, Wild Business Ltd.



What's happened and why?

The University of Oxford, in conjunction with consultant Wild Business Ltd., has undertaken an analysis of the environmental impact of its operations, the first of its type for a university. Whilst meant as a **preliminary assessment**, the broad scope and extensive measurement techniques make this a significant first step on the University's journey to sustainability.

This report comes as the University is in the process of preparing a new Environmental Sustainability Strategy. Part of that strategy will set targets on mitigating the University's greenhouse gas (GHG) and biodiversity footprint. Those targets are something to aim for, but it is first imperative the University has a grasp on **where the 'starting line' is**. This is referred to as "baseline impact", and the report aims to give indications on the relative size and sources of the University's current GHG emissions and biodiversity impact, so going forward the University will know where to **prioritise action**.

This non-technical document is designed as a summary of the methods that were used, the results and some key take-aways. For those who would like more detail, the full report by Wild Business is also available.

How was the analysis carried out?

The scope of the analysis looked at the University's central operations¹ and grouped its activities into five categories (called 'aspects'): **travel, food, buildings, rural estate, and resource usage and waste**. Impacts, or ways in which the University changes the environment, were then sorted into three 'tiers', depending on how much **control and influence** the University had over the activities that caused the environmental impact.

- Tier 1: activities under direct University control
- Tier 2: activities carried out by staff linked to their job or by contractors that the University has direct influence over
- Tier 3: activities carried out by students that the University has indirect influence over, or impacts from supply chains of purchased items where the University does not have direct control

Activities that occurred from the five aspects of the University's operations were then collected, and then **five key environmental impacts** were worked out:

- GHG emissions (in tonnes of CO₂ equivalent)

¹ Operations and impacts associated with: Oxford University Press, Oxford University Endowment Management, and all of the Oxford-affiliated colleges and PPHs were excluded.

- Land use (in type and area by m²)
- Water use (in m³)
- Water pollution (in kg of nutrients and toxic chemicals released in water)
- Air pollution (in kg of nitrous and sulphurous oxides and particulate matter)

Once the totals of the five impacts above were calculated, they could be interpreted in terms of their contribution to **climate change and biodiversity loss**. Climate change impacts were reported directly in terms of GHG emissions. For biodiversity, Wild Business used a method that combines each of these five impacts into a measure of pressure on biodiversity (specifically, on numbers of species in a local area). This was a necessarily simplistic approach due to how complex measuring ‘biodiversity’ is. However, it allowed for **relative comparisons** between different University aspects.

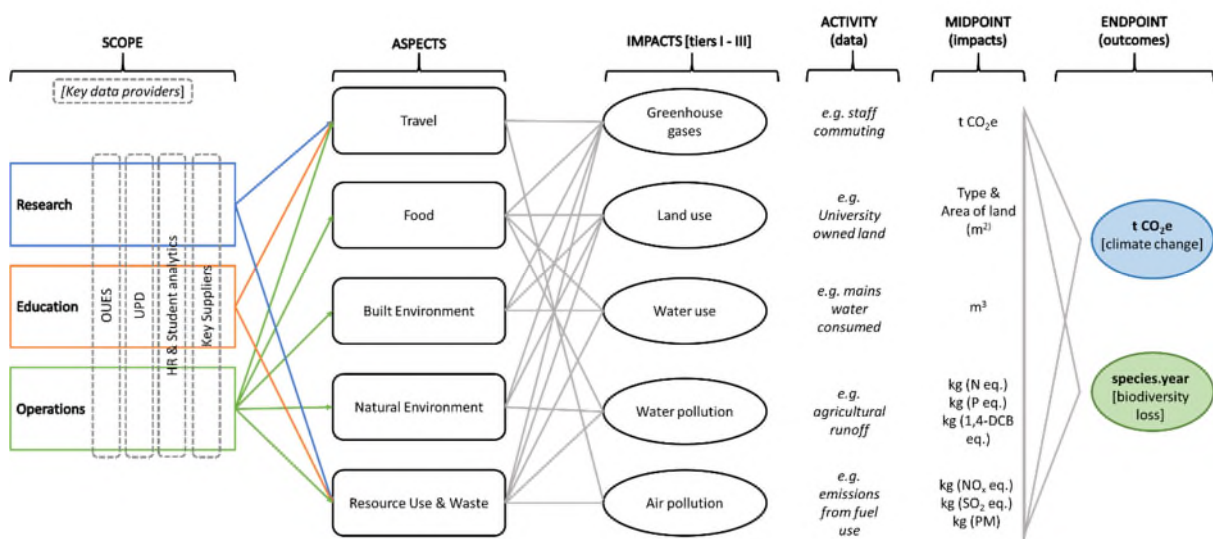


Figure 1: schematic capturing the assessment framework used, including scope of assessment, aspects, impacts and mid-point/end-point metrics.

What were the results?

The main findings are shown in figure 2. This shows the relative sizes of impacts across the different tiers of aspects at the University, for GHG and biodiversity footprint. It is very clear from this analysis that the **vast majority** of University-associated impacts lie in the third tier of control, and are associated with **resource use and waste disposal** aspects. This is as expected as it encompasses the widest range of activities, some of which could be attributed to other organisations in the supply chain. The report indicates that environmental impacts associated with **laboratory and paper supplies** far outweighs the impacts of the University’s flights, for example, both with respect to biodiversity and GHG emissions.

Whilst this analysis was comprehensive, there are still **significant data gaps** that need to be filled to gain a complete picture of impacts. This includes detailed information on delegate travel for Oxford-hosted conferences, pesticide and fertiliser use on the University’s estate, and the impacts of university construction projects and their associated supply chains, as just a few examples. The below table lists the ‘top 10’ most impactful activities in terms of GHG footprint and biodiversity impact:

Rank	Biodiversity impact	GHG emissions
1	Laboratory equipment	Laboratory equipment
2	Paper	Construction
3	Staff & student food	Paper

4	Construction	Electricity use ²
5	Electricity use	Business flights
6	Business flights	Business services supply chain
7	IT equipment	International student flights ³
8	International student flights	Gas use
9	Business services	IT equipment
10	Gas use	Staff & student food

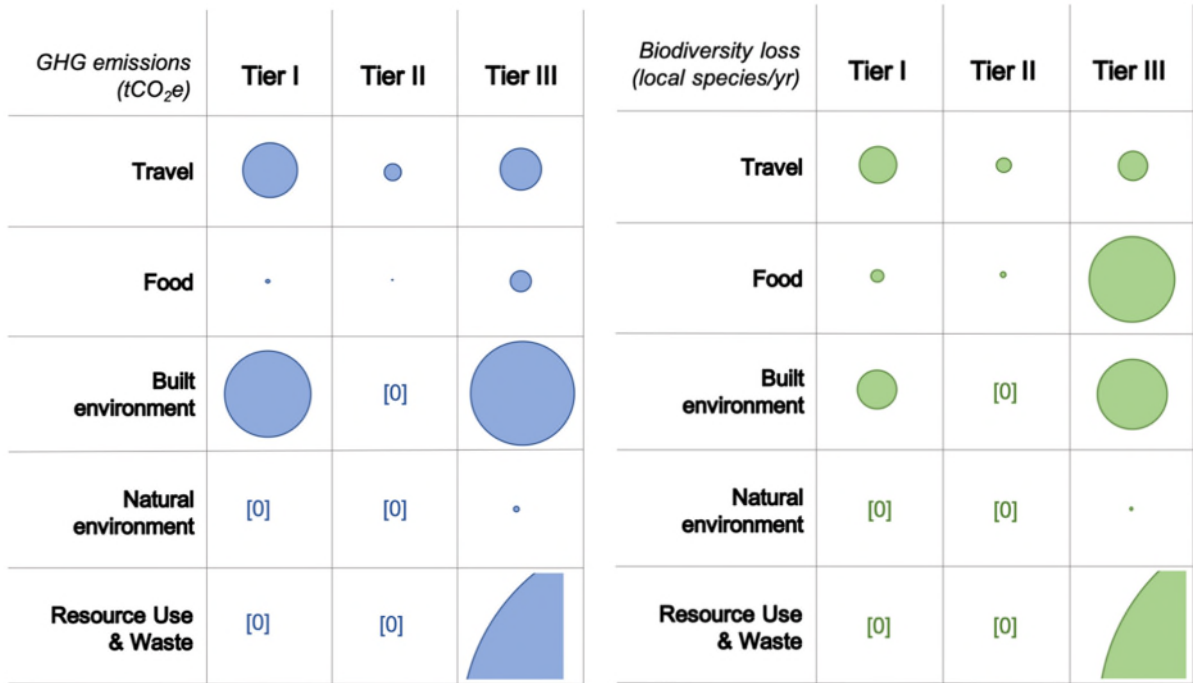


Figure 2: summary of end-point impacts for (a) GHG emissions, and (b) biodiversity loss. The diameter of each circle gives the relative size, although GHG emissions and biodiversity loss are not directly comparable. Tier III (resource use & waste) gives a small section of a larger circle, indicating how much larger impacts are in this category. [0] = negligible impacts.

How can the University use this going forward?

The analysis has identified **where the key gaps in the data are** – the University can now prioritise filling those gaps so they have an increasingly better understanding of their environmental impacts. They will also need to understand how changing **procurement decisions** can help reduce tier 3 impacts. The development and upcoming publication of the University **Sustainability Strategy** provides a valuable opportunity to seize momentum and promote behavioural shifts in staff and students that delivers impact in key areas, such as travel, food and the use of resources such as paper.

The University is using the **‘4 Steps 4 The Earth’** framework for tackling environmental impacts, which has been developed by a team of leading scientists from the University. The Mitigation & Conservation Hierarchy – to give it its technical name – provides a framework for organisations like the University to structure their planning with respect to meeting an overarching goal (such as net gain for biodiversity):

² Assuming electricity is generated as per the national average – but the University purchases from a ‘green tariff’, so the true value may be a lot less.

³ Best-case scenario assuming international students only take one return trip between University and home per year, so the true value may be a lot more.

1. **Refrain** – refrain from actions that harm nature
2. **Reduce** – reduce harmful actions as far as possible
3. **Restore** – restore nature that has been harmed
4. **Renew** – renew nature through new actions that make a real difference

An important part of using the 4 Steps framework is **transparent accounting**. The University has published details of its environmental impact annually via the HESA Environmental Management Report, and will publish future strategies and goals that are set, along with annual accounts to measure progress. Being public and transparent **motivates the achievement** of those goals. It also demonstrates leadership prompting other organisations across the sector and throughout the supply chain to do the same.

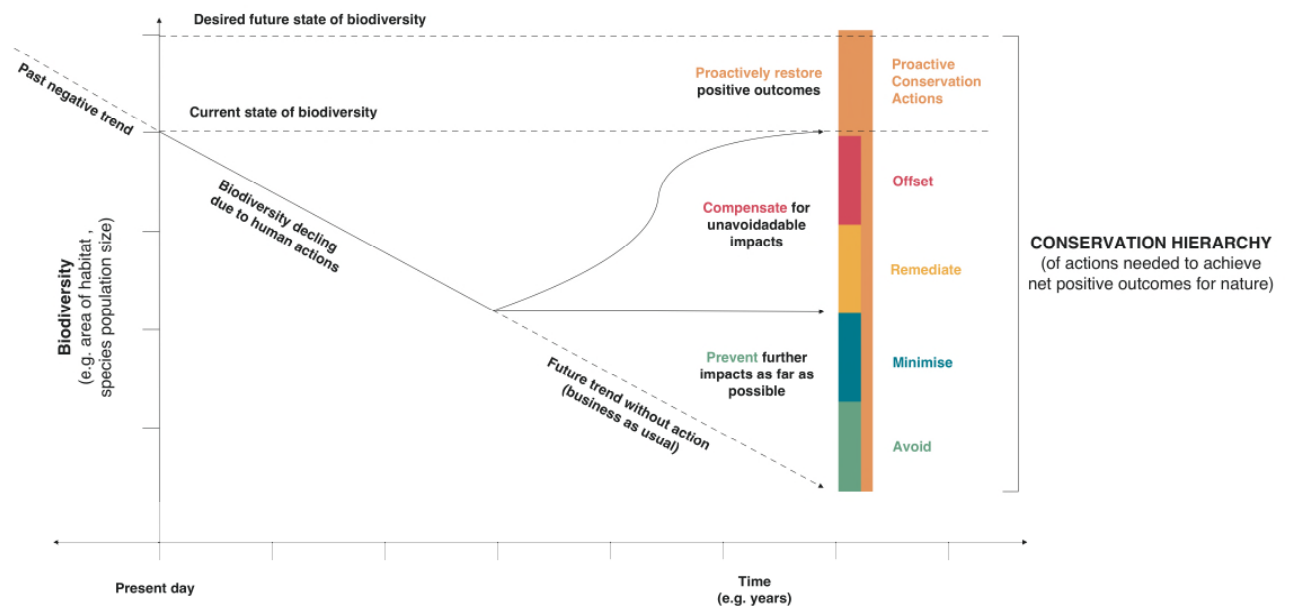


Figure 3: a schematic showing the trend of declining biodiversity due to harmful impact, and how the 4 Steps 4 The Earth framework can be used by an institution to achieve and account for a no net loss, net zero, or net gain target, as applicable. Avoid, Minimise, Remediate and Offset are the words used when talking about an organisation's concrete impacts which must be mitigated; Refrain, Reduce, Restore, Renew are the words used when positive conservation actions are also included.

What are the key things that have been learned?

It has been surprising how **enormous the indirect impacts** of laboratory resources are. Whilst there will be impact that can be prevented here, a lot of this might turn out to be **'unavoidable'** (since lab functioning is critical to Oxford), so residual impact may have to be offset. It may also be that a wide range of activities are captured under this code, which it would be helpful to disaggregate.

The impact of an activity is often greatest in tiers where the University has **less control**. But whilst the impact of paper is mainly in the supply chain, there is clearly a lot the University can do to prevent that impact by reducing paper use.

The **absolute size** of the University's GHG footprint, which amounts to around 1% of the emissions of Wales) seems astonishing for a single university (given many activities – e.g. OUP, the colleges – were excluded). This really highlights the **importance of sustainability in universities**,

when you consider Oxford is just one of many universities in the UK and globally. It also demonstrates the need for rigorous and consistent GHG accounting throughout the supply chain to ensure there is no double counting or missed emissions.

Even if all of Oxford's **land estate** were restored to fully natural habitat, it would make a nearly negligible contribution to compensating for even just a year's worth of biodiversity impact. However, such initiatives are a great opportunity for the University to be **proactive**, and are important for **wellbeing, raising awareness** about sustainability efforts, communicating the importance of nature conservation, and collaborating with external efforts to restore biodiversity.

The way impacts are accounted for can make a big difference. GHG emissions from waste **incinerated** to produce energy would be the single largest source of GHG emissions from the University if the users of the energy produced weren't the ones to 'take on' the impact. On the other hand, if the University accounted for its electricity emissions based on its **purchasing of renewable energy**, then its impacts associated with electricity would be almost negligible⁴.

Consistently quantifying biodiversity impacts enables the reporting of biodiversity metrics on an **equal footing** with GHG emissions. Reporting against both biodiversity and GHG emissions **provides greater insight** to overall impact on the environment. For instance, supplying staff & student food ranks as the 10th most impactful activity in terms of GHG emissions alone but it was in 3rd place for biodiversity. This more comprehensive approach to measuring the environmental impact of the activity has the potential to change the focus of University sustainability measures.

Finally, the report gives some key recommendations for how to fill data gaps and improve the robustness of the results supplied as the university moves forward with its environmental sustainability strategy. In particular, it will be very beneficial to **invest in improving** the biodiversity metric, and to get a more granular view of each of the different areas of activity.

⁴ N.B. all the accounting used in Wild Business' report followed the standard guidance of what to include and what not to include.