



**Building biodiversity into corporate accounting and reporting:
interdisciplinary perspectives, challenges, and solutions**

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Workshop summary report, September 2018

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Introduction

The University of Oxford, with the support of the ICAEW's Charitable Trusts and the Natural Capital Coalition, hosted a workshop on the 16th and 17th July to explore whether and how biodiversity can be integrated more comprehensively into corporate-level accounting and reporting. This workshop brought together 17 participants with technical expertise across a variety of disciplines including accounting, sustainability, auditing, environmental economics, and conservation science.

This topic is a complex one, which requires an in-depth understanding of the market forces that drive corporate accounting and reporting, the current status of non-financial accounting and reporting systems, an understanding of natural capital approaches to help value the living environment, and an understanding of biodiversity measurement and management. Participants engaged in enthusiastic and lively discussions around why accounting and reporting approaches are well defined in some areas (e.g. for financial capital and for carbon emissions), whilst in other critical aspects of the natural environment, such as biodiversity, corporate accounting and reporting approaches are yet to be fully developed. Discussions were centred around two key questions:

Why is that biodiversity is the 'poor cousin' of climate in the context of corporate accounting and reporting?

How can corporations do more for biodiversity, and how does corporate accounting and reporting play a role in that?

The feedback from workshop participants was overwhelmingly positive (Appendix 2), with participants commenting on how much they learnt from different discipline perspectives, and how valuable they think this will be in progressing biodiversity in corporate accounting and reporting. Here we provide a high-level summary of workshop discussions. This workshop report is not intended as the final output of this initiative, rather participants have the opportunity to further engage in collaboration through a variety of peer-review papers, industry briefing notes, and interdisciplinary research proposals in the coming months. These outputs are outlined at the end of this report.

We would like to acknowledge and thank all workshop participants who have contributed to the workshop discussions, which are highlighted in this report:

Name	Organisation
Prue Addison	Interdisciplinary Centre for Conservation Science, University of Oxford
Julia Baker	Balfour Beatty
Richard Barker	Saïd Business School, University of Oxford
Wim Bartels	KPMG
Katie Bolt	RSPB
Joe Bull	Durrell Institute of Conservation and Ecology, University of Kent
Mike Burgass	Interdisciplinary Centre for Conservation Science, University of Oxford
Ian Dickie	Eftec
Rosie Dunscombe	Natural Capital Coalition
Annelisa Grigg	UN Environment World Conservation Monitoring Centre
Rodney Irwin	World Business Council for Sustainable Development
Georgina Mace	Centre for Biodiversity and Environment Research, University College London

Name	Organisation
Luke McLaughlin	Accounting for Sustainability
EJ Milner-Gulland	Interdisciplinary Centre for Conservation Science, University of Oxford
Adam Peirce	Climate Disclosure Standards Board
Richard Spencer	Institute of Chartered Accountants in England and Wales
Jeffrey Unerman	Lancaster University

The context

At the corporate level there are various non-financial accounting and reporting approaches that guide businesses in disclosing natural capital impacts and dependencies. These approaches include non-financial accounts that can be presented alongside financial accounts, as well as a variety of non-financial reporting formats that support businesses in disclosing environmental, social and governance issues to a range of audiences external to the business entity.

Systems of non-financial accounting and reporting have not progressed as far with respect to biodiversity as they have in other aspects of natural capital. For example, while the concept of natural capital applies equally to the two arenas of climate and biodiversity, corporate accounting and reporting with respect to carbon emissions and climate change adaptation are far better developed than is the case for biodiversity.

Over the two-day workshop, participants discussed and synthesised what existing frameworks, standards and approaches exist that encourage and support corporate-level accounting and reporting of non-financial attributes of a business. Many of these were created for carbon emissions and climate change adaptation accounting and reporting. Participants collectively developed a typology of non-financial reporting and accounting approaches that are designed for different audiences (e.g., from investors, to society, to internal management), and to help assess impacts (e.g. recognised as an externality, or internalised as a risk to the business) through to dependencies (e.g., acknowledged as having a direct impact on the business as a result of the business impacting the asset or external factors impacting the asset).

This typology will be explored in more detail in our upcoming workshop outputs. It helped participants develop a shared understanding of what accounting and reporting approaches currently exist, and importantly where gaps currently exist. For example: more approaches are designed to help assess impacts versus dependencies; more standard approaches exist for accounting and reporting to investors; and, more bespoke approaches exist for management accounting. Many participants agreed that an understanding of the current state of non-financial accounting and reporting is critical to determine if and how biodiversity can be better integrated into corporate accounting and reporting; and that we should not be exploring the development of entirely new methods or standards for corporate biodiversity accountability.

The challenge

Based upon a pre-read paper from Richard Barker and Prue Addison, participants discussed and debated what the critical challenges are for improving the incorporation of biodiversity into corporate non-financial accounting and reporting. We briefly outline these challenges here, and this will be explored in more detail in our upcoming workshop outputs.

Scope & Sustainability:

- The boundary of the accounting entity is typically drawn differently for biodiversity than it is for financial, albeit that in principle it could be more aligned. For example, accounting for biodiversity impacts and dependencies should be throughout the value chain, from original supply (e.g., raw materials) to final consumption (e.g., store location); whereas for financial, it is impact only on economic resources controlled directly by the reporting entity (e.g., financial impairment losses are recognised only on natural capital owned by the reporting entity – upstream or downstream impacts are not accounted for).
- Financial accounting generally asks how much profit was made, not whether those profits can be expected to be sustained in future periods (notwithstanding that financial accounting is to some extent inherently forward looking, for example in the definition of an asset). On the other hand it is critical for biodiversity accounting not only to assess the current stock, but to be forward looking and assess the sustainability of the stock, as biodiversity loss cannot be assumed to have a linear relationship with time, rather biodiversity can have non-linear relationships, and critical tipping points resulting in irreversible loss.

Measurement

- Commensuration - Biodiversity can be difficult to define and measure, in a way that aligns with corporate reporting. The Convention on Biological Diversity (CBD) defines biological diversity as “variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems”. There are issues with consensus around what aspects of biodiversity to measure (e.g., species vs ecosystems, state vs pressure vs response). The multiple perspectives of biodiversity performance within CBD do not naturally fit in the current model of single environmental issue commitments matched with single quantitative metrics that are disclosed in accounts or reports.
- Attribution – The boundaries of organisational accountability do not capture the interconnectedness of shared responsibility and dependence on biodiversity. It can be directly and indirectly impacted by an individual business, yet also by other businesses and by larger natural and anthropogenic processes (e.g., climate change). A reporting entity might have a small impact yet the combined impact of multiple entities might be big. There are likely to be more similarities with water accountability here, rather than comparing to carbon emission targets that are scalable to the global level. The system feedbacks complicate attribution, and mean that some form of ecosystem-level accountability may be required (which is yet to exist in reality).
- Aggregation – Biodiversity measurement at the site-level (e.g., the abundance of a species) is very different to biodiversity measurement at the global-level (e.g., the living planet index – an index of population trends of vertebrate species). In addition, biodiversity units of measurement are not fungible, i.e., measures of one species are not interchangeable or equivalent with measures of another species or ecosystem (yet these both could be measures of biodiversity). Measurement of biodiversity over different time horizons can also be different. The very nature of biodiversity measurement is multi-scalar in time and

space, which poses a challenge for aggregation of biodiversity information for corporate accounting and reporting.

Standardisation

- The evolution of climate commitments, and of carbon reporting by companies, has been supported by a variety of prominent standards, multi-national agreements, and national regulation. Biodiversity is incorporated into some voluntary initiatives (e.g., the Global Reporting Initiative), and some regulation (e.g., French government regulation for non-financial corporate reporting). There is a role for standards and regulation in driving sustainability accounting, however we note that there needs to be an evolution in development towards standards – e.g. from frameworks, to guidelines, to standards. Imposing regulation and standards too early can cause heel-dragging and ‘boiler plate’ disclosure, whereas there is likely to be greater traction by means of encouraging innovation/improvement through management accounting. However regulation and standards will eventually be needed to level the playing field, to ensure consistency and equal burden across all companies in accounting for and reporting on biodiversity.

Possible solutions

Following the variety of challenges discussed, participants brainstormed a range of possible avenues to pursue in order to improve the incorporation of biodiversity into corporate non-financial accounting and reporting. We briefly outline key possible solutions here, and this will be explored in more detail in upcoming workshop outputs.

The pragmatic approach – build on lessons from carbon reporting: Look back through the last decades to understand the evolution of carbon reporting and climate commitments made by businesses. The science-based targets and metrics are by no means perfect, and are by no means complete. Assess events, enabling conditions, and existing carbon reporting and accounting approaches (e.g., the TCFD) to fast track the integration of biodiversity into corporate reporting and accounting.

Focus attention on management accounting: Management accounting is a space for experimentation and innovation. It is not regulated, and does not require consistency or standards (unlike for example reporting to investors). It is the preceding form of accounting that needs to be flexible for internal context-specific management decisions. There is a real opportunity to develop and test approaches for biodiversity accounting and reporting to support management decisions, under the radar of more formal frameworks, standards and regulation (e.g., compared to reporting to society and investors). Conservation and accounting practitioners could best focus their attention on this aspect of corporate accounting and reporting to rapidly develop and test new ways of incorporating biodiversity into business decision-making.

Focus on biodiversity measurement and narrative: Even for financial statements, most financial value is not reflected on balance sheets, rather it is the supporting qualitative narrative and interpretation of quantitative values provided in income statements and balance sheets that allows the market to interpret risks and opportunities of a company. This is very much likely to be the same for biodiversity. Much discussion and work to date has focussed on the quantification of biodiversity for business, in the form of “simple” metrics or indicators to support business

decisions. Actually what is also needed is exploration of how a narrative around quantities of biodiversity can be formed to better integrate biodiversity into business decisions.

Business leadership and case studies: There are already business leaders and case studies of business action on biodiversity. We need to share and scale up these case studies to spark greater innovation and leadership. Through this approach, it would be possible to develop market understanding of what does and does not work. This learning by doing approach is a more sustainable way to evolve approaches, rather than simply making ‘the business case for biodiversity’, and focussing on developing standardised / regulated approaches to corporate reporting and accounting.

Materiality and quantification of risk: Over the last 30 years we have witnessed losses of biodiversity in the order of 60% decline. This is a slow burning issue, which has had little, or even positive, influence on corporate (economic) performance, as the benefits from consuming natural resource have been ‘enjoyed’ while the consequences not yet felt. To date biodiversity has not been a uniformly material issue across sectors. This is because regulatory and financial structures have not made biodiversity a material risk to business. What is needed now is to quantify biodiversity risks to different sectors, using example case studies where there have been serious financial or other implications for a business due to biodiversity risk (e.g., breach of regulation, lack of access to finance, or collapse of natural resource stock on which business is reliant). In addition, much stronger financial incentives and regulation are needed to make biodiversity rise in prominence as a material risk to business, to mandate corporate responsibility for biodiversity.

Share inter-disciplinary solutions with different disciplines: The vast majority of participants made specific mention of the value that inter-disciplinary discussions had at the workshop (see Appendix 2). This promoted a greater appreciation of the complexity and interdisciplinary nature of the workshop topic from some participants. Participants agreed that the greatest value in the interdisciplinary discussion was the amount that they learned from the other disciplines. They agreed that what would be beneficial is to translate the workshop discussions to be relevant for specific disciplines (essentially taking the lessons learnt from the workshop, and reporting back separately to conservation scientists, accounting professionals, environmental economists, standard setters, and business leaders).

Next Steps

Over the coming months, and in the light of the ‘possible solutions’ outlined above, we will be proposing a series of workshop outputs to the workshop participants for further collaboration. These outputs include:

- A peer-review paper for a conservation science academic audience, based on lessons from non-financial and carbon accounting and reporting, to guide conservation scientists in understanding and supporting corporate biodiversity accounting and reporting. Paper to be led by Prue Addison.
- A peer-review paper for an accounting academic audience, based on lessons from conservation science, to guide accounting academics in understanding the distinctive challenges posed by biodiversity for corporate accounting and reporting. Paper to be led by Richard Barker.

- Briefing notes and infographics for a practitioner audience on key steps of corporate biodiversity management / reporting / accounting: 1) business (sustainability, finance, environmental management practitioners), 2) accounting professionals. Lead TBC.
- An interdisciplinary research proposal will also be prepared to help carry some of the ideas for research and practice forward. This will be led by Prue Addison and Richard Barker.

Beyond these immediate outputs, we see real value in maintaining this network of practitioners to help progress the incorporation of biodiversity in corporate accounting and reporting. There is considerable potential here, for activities including seminars and workshops for standard setters, accounting professionals, and businesses, and interdisciplinary research into biodiversity & corporate accounting and reporting.

Appendix 1: Workshop Agenda

Workshop Agenda

Monday 16 July

12.30–13.00	Workshop arrival time, with tea and coffee
13.00–13.45	Welcome & scene setting by Professor Richard Barker and Dr Prue Addison
13.45–15.00	Workshop breakout session 1: Complexities and challenges of incorporating biodiversity into natural capital accounting
15.00–15.30	Afternoon tea break
15.30–17.00	Plenary session on workshop breakout session 1
17.00	Workshop close
18.00	Pre-dinner drinks at Christ Church
19.30	Workshop dinner

Tuesday 17 July

09.00–10.30	Recap on day 1 and detailed discussion around current non-financial accounting & reporting
10.30–11:00	Morning tea break
11.00–12.00	Workshop breakout session 2: Interdisciplinary solutions & innovative approaches to integrate biodiversity into natural capital accounting and reporting
12.00–13.00	Lunch
13.00–14.00	Workshop breakout session 3: System-level changes to support the integration of biodiversity into natural capital accounting
14.00–15.00	Discuss next steps – paper and briefing notes
15.00	Workshop close

Appendix 2: Participants Feedback

1. What aspect(s) of the workshop did you particularly like?

- Hearing more from the accounting professionals about how they view/use accounts.
- I thought it was a well hosted and organised workshop with sufficient time to discuss issues and potential challenges. I appreciated meeting biodiversity / conservation science / natural capital specialists to understand more about the work they do as I didn't have as much perspective of the work they do.
- The interdisciplinary discussion, especially in the breakout sessions
- The structure was well thought out (i.e. break-out sessions vs plenaries); I can see how the discussions will be structured into a potentially very interesting paper as an output; Excellent selection of participants from a host of different disciplines; Well organised; Overall a fantastic workshop
- The great mix of experts in the room; the right number of participants (not too many and not too few); the right balance of group discussion and break-out groups; the pre-workshop material (sent well in advance!).
- The number of participants enabled an engaged and thorough discussion with an excellent range of expertise and experiences; The tour of Christ Church was a memorable addition and very much appreciated; The timing was also very good, starting midday and finishing at 3pm and allowing for travel; Catering was very good and the dinner was lovely.
- The range of expertise in the room was really interesting. Everyone had something different to contribute which really aided the discussion. I think the "no experts" rule worked to good effect.
- The interactive discussion throughout with a real multidisciplinary group; The focus on barriers as well as solutions; The fact that it was a relatively small group.
- Group that was really multidisciplinary but with existing knowledge on NC/ BES. And a good atmosphere to challenge views.
- I thought the workshop was well-structured and there was an open and free dialogue that was illuminating. I certainly felt I had learned a great deal.
- Particularly the inter-disciplinary nature of the attendees and how this was reflected in the break out groups. Witnessing academics, accountants and ecologists exchanging knowledge and ideas was brilliant! Having drinks and dinner was not only enjoyable, but I felt it facilitated greater collaboration in a more informal setting – thank you! I also thought that having the matrix/table to work to on the 2nd day worked well as a way of focussing participants on a specific output. It was also good that we moved on at the appropriate point, rather than spending all day on this (as we well could have done!).
- Meeting people with new perspectives and ideas, from a very different discipline.

2. What aspect(s) of the workshop did you enjoy less?

- I felt we went round in circles on means versus ends, or how versus why!
- Oxford station being closed made it more difficult to get there, but I know that's out of your control!
- The whole experience was really good. It was a pity to end when we had to end, as the insights possibly could have gone much further with another half day

- Would probably have preferred to do the workshop over one day (although enjoyed the evening events very much)
- A minor point, but being in different groups for the second day would have been better to have fresh discussions and perspectives.
- The range of issues are broad and possibly more progress could have been made by identifying a couple of exploring those more deeply.
- It might help to have a note taker and facilitator on each table, as I think it's a tough task to contribute to the discussion whilst taking detailed notes. I was also disappointed to not be able to make the second day of the workshop and I look forward to a follow up notes.
- The discussion around the framework plotting – I did not see the full value of it and it was taking long in my perception.
- I thought day 2 got a bit bogged down with existing approaches, whereas we could have done more creative thinking on designing metrics.
- As for the workshop – nothing!
- Difficult to say, I really did enjoy it all. There is often in such gatherings a temptation to go back to the “safe” ground of characterising the problem, rather than have the more challenging discussions of what we plan to do. This is often in the face of insurmountable institutional inertia: an assumption that big business won't adapt and is too powerful to move; that the institution of accounting is equally resistant to change. I wonder if it would be better asking “how do we and our organisations and institutions change to solve the problem of biodiversity loss?” rather than saying how do we fit biodiversity loss into our existing frameworks to make sense of it?
- I would have preferred to have rotated the groups rather than being in the same group twice – I don't think our discussions were as sparky and insightful in the second breakout session, mostly because we were rather re-treading the same ground.

3. Is there anything you think we could improve for future interdisciplinary workshops?

- It was great – a good number of people and well balanced. I was unfamiliar with a lot of the acronyms for reporting frameworks but am not sure that mattered.
- I think some more explanation of common or shared definitions that could be used within the workshop would be good as we got bogged down a couple of times in those types of discussion.
- More time for breakout sessions
- The pre-reading could perhaps have included some information on participants, including their expertise and contact details; Need to find a way to keep discussions slightly more on track, as it is so easy for them to go off on tangents with people from multiple disciplines!
- Possibly a bit of time at the start to hear more about each other's work, as there was such an interesting mix of experts in the room. But balanced with an already packed agenda; This is a minor point but the room could have been better. Overall the venue was great but the room was a bit small but lots of noise from outside.
- Nope, it was great!
- It would be useful to have a government/legislation perspective so they can provide a perspective on the legislative limitations.

- In terms of formats you could think of another setting (i.e. not at a table but in other setting/seating) and making it even more active by having sessions where participants share their ideas visually for instance.
- Ask some people to bring examples of data.
- I really enjoyed the intimacy of the small workshop/roundtable format. I guess if you are seeking wider engagement, a broader range of thought and input you may need a bigger group but that will need facilitating.
- Nothing springs to mind – keeping us on track with timings was key and would be invaluable at future workshops too!
- I would have preferred to have rotated the groups rather than being in the same group twice.

4. Can you share any key things you've taken away from the workshop (e.g., new contact(s), new perspective(s) on biodiversity or corporate accounting and reporting, a new appreciation of British history from Richard's tour of Christ Church!):

- I loved the Christ Church tour! But I feel I have a much better understanding of the accountancy standards and what motivated them. I've learned that we should not obsess about the numbers in accounts because accountancy reporting is much more open ended, can be less structured and can be forward-looking.
- I've met a couple of CDSB's Technical Working Group members in person for the first time so it was good to faces to names. I'm also planning to follow up with Jeff once he's started his new position at Lancaster. It's also confirmed my thoughts that the concept paper CDSB put together on the overlaps between TCFD & how it can be applied by natural capital should be progressed and this interdisciplinary group might be a better way forward with assistance / input as there was limited support from our technical working group.
- That the process of seeking to quantify can be valuable in identifying the key aspects of the issue for which quantification is sought – even if the conclusion is that meaningful quantification is not feasible. There then needs to be much more readiness to recognise the point at which attempts at quantification should stopped and a narrative account developed based on the key factors identified through the process of attempting to arrive at a quantification; Biodiversity is even more complex than I had previously thought, and several orders of magnitude more complex than carbon (which itself is more complex than economic factors usually reported in financial accounting and reporting). This is a huge challenge in developing standardised accounting.
- Yes to making new contacts; I enjoyed hearing the points made by accountants (as I don't typically interact with them); Definitely enjoyed the cultural aspects!
- New contacts, which is great. Definitely good ideas to progress corporate accounting / reporting of biodiversity within my company. Excitement about future progress with this project, as I think it will lead to great things!
- Absolutely, a new appreciation of British history! A real benefit of the workshop were the new contacts I made with relevant people but those who I may not otherwise meet.
- I had some very thought provoking discussions with various people which I will take back to my team - as to work we can do around biodiversity and beyond.
- Definitely the latter on British history! But also the key reasons why biodiversity is not on companies' agenda, the split between the 'why's' and the 'hows' of not accounting for

biodiversity and the strong perspectives that some people from other disciplines have on biodiversity and business.

- I learnt some things about how to frame NC accounting, which was great; I also thought more about the structure of biodiversity metrics in NC accounting. So for protected areas, if KBAs can be a universal definition then this creates a basis for metrics that are scalable and repeatable for accounting. Then we need similar for the widespread/landscape biodiversity.
- My key learning for this was the need to have a core message for our work and to develop narratives for different groups so that they are in their language and speak to their issues. For example, in speaking to some civil society groups it will be necessary to acknowledge and engage with their difficulties with the idea of natural capital itself; We are casting nature (here biodiversity) in the language of business. Whilst this makes it accessible to business we also have to be conscious that that process will produce clashes, dislocations and contested spaces.
- New contacts have been especially useful for me, being relatively new in role. Also the concept of moving towards a social norm for accounting (as opposed to working toward perfection) – this is a concept I have been trying to communicate, but not as effectively as Jeffery at the conference!
- Hopefully we will keep going with this. An appreciation of how interesting the topic is!