# Archives and the environment

A report generated from the presentations and conversations that took place during the workshop ‘Archives and the environment: an experimentation workshop’ organised by the School of Advanced Study, University of London and The National Archives on Tuesday 9 May 2023 at The National Archives, Kew.

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| Reviewer(s) |  |
| Version history | 1.0 (14 July 2023)  2.0 (18 August 2023)  3.0 (2 November 2023) |
| Sponsoring institutions | School of Advanced Study, University of London  The National Archives of the UK |

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## Introduction to the report

This report, and the workshop that inspired it, is intended to be the starting point of one local conversation about the complex relationships between archives and the environment. Similar conversations are happening around the world, and the authors and contributors acknowledge the importance of existing research.

The challenges of climate change are global, but they are also local and regional. This report aims at surfacing some of those local questions, drawing on different forms of knowledge and expertise to begin to build a community of interest focused on archival research and practice in relation to the environment.

The report opens with a description of what we hope will be the first of several interdisciplinary workshops focusing on archives and the environment. It then presents highlights from both the short ‘provocations’ and papers delivered by invited speakers and the subsequent discussions. It concludes with some preliminary recommendations for further work and community building.

This is a living document and we welcome comments and suggestions.

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## Workshop description

On Tuesday 9 May 2023, the School of Advanced Study and The National Archives of the UK organised a one-day, in-person workshop that explored the complex set of relationships between archives and the environment. There were thirty-two participants, including the organisers. Twenty-two people were invited to attend, while ten submitted an [Expression of Interest](https://www.nationalarchives.gov.uk/about/our-research-and-academic-collaboration/research-events/digital-experimentation-workshops/archives-and-the-environment-expression-of-interest/) in response to an open call.

The workshop was designed to bring together researchers and practitioners from archival science, digital humanities, computer science, digital preservation and environmental humanities to discuss:

* the use of digital methods to explore archives as records of environmental change;
* the impact of environmental change on archives, and strategies for protecting and preserving vulnerable archives;
* the environmental cost of creating and preserving born-digital and digitised archives, and the digital infrastructure, tools and methods used to analyse them

A key aim of the workshop was to build interdisciplinary partnership and collaboration, catalysing ideas for research projects, networks and funding proposals.

The day started with a series of short provocations (see the workshop agenda below) identifying key challenges and opportunities from different disciplinary and sectoral perspectives. In the afternoon session, there were three short presentations focused on collections, data and methodologies, showcasing examples from the work happening at The National Archives. The provocations and focused talks informed the subsequent discussions in multidisciplinary break-out groups, tasked with generating ideas for research projects, public engagement activities and other initiatives to address how archives document, influence and are influenced by environmental change.

## Workshop agenda and structure

The workshop was divided into three sessions: morning provocations, early afternoon case studies from The National Archives and late afternoon group interactions. The provocations and case studies set the stage for the group conversations which were tasked with exploring three main points:

1. What are the key themes, challenges etc. that should be highlighted in the community report to be published from the event? What currently prevents collaboration between stakeholders; what would enable greater cross-sectoral and interdisciplinary collaboration; what might be prioritised; what can we contribute as individuals and institutions; what people, skills and expertise need to be included in the conversation?
2. Projects that might be developed to address themes related to archives and the environment, e.g. using archives to help understand climate change, exploring the environmental impact of archives, addressing environmental risk to physical and digital archives etc.
3. Challenges and opportunities within the following areas: infrastructure; data; collections; interdisciplinarity; knowledge gaps

### Agenda

**10:00 REGISTRATION OPENS**

**10:30 – 10:45 INTRODUCTION** Eirini Goudarouli  & Jane Winters

**10:45 – 11:25 PROVOCATIONS & DISCUSSION** (chaired by Eirini Goudarouli)

Juergen Vervoorst, *Sustainable archives – do we have to change a conservation mindset?*

Georgina Robinson, *Discussing the weather: Climate action in archival literature*

Jo Walton, *The Digital Humanities, Net Zero, and the Scientific Case Against Capitalism*

**11:25 COFFEE/TEA BREAK**

**11:50 – 12:45 PROVOCATIONS & DISCUSSION** (chaired by Jane Winters)

Kiri Ross-Jones, *Plant Archives: The Places, Plants & People Archives Network, and an introduction to the Archives of Kew Gardens*

Arlene Crampsie, *When small data becomes big data: the opportunities and challenges of utilising digitised archives in climate hazard research*

Andy Cummins, *How open source software built upon existing platforms can illuminate our world’s natural history*

Enaiê Azambuja, *Documenting Loss and Preserving Memory through Digital Archives: Languages and Environments*

**12:45 LUNCH & COFFEE/TEA BREAK**

**13:45 – 14:45 FOCUS ON: COLLECTIONS, DATA and TECHNOLOGIES & DISCUSSION** (chaired by John Moore)

Kaja Marczewska, *From environmental humanities to sustainable futures: The National Archives’ collections and the study of the environment*

Mark Bell, *Environment and the UK Government Web Archive*

Pedro Maximo Rocha, *Building a Smarter Future: Environmental Monitoring into Digital Twins*

**14:45 – 16:00 BREAK-OUT GROUP DISCUSSIONS**

**16:00 - 16:30 REPORT BACK AND ACTION LIST** (led by Jane Winters)

**16:30 CLOSE**

## Workshop highlights

1. A key theme that emerged in both the presentations and the break-out discussions was the idea of moving away from a commitment to best practice in archives and exploring the parameters of practice that is ‘good enough’. Establishing what ‘good enough’ looks like in different contexts will be an important research question to be addressed in future years. This is connected to ideas about minimal computing (see below), but specifically concerns work to archive and sustainably preserve digitised and born-digital archives. Juergen Vervoorst noted that it is very difficult to turn away from best practice that has been developed over more than half a century. A deep rethinking of the theory and practice of archival conservation, for both physical and digital archives, is required in order to address and mitigate its environmental impact. This supports the call in Pendergrass et al. 2019 ‘for a paradigm shift in digital preservation practices for appraisal, permanence, and availability of digital content’ (p. 4) and extends it to conservation practices more broadly. The Digital Preservation Coalition has similarly called for a re-evaluation of all aspects of digital preservation (Kilbride 2023) A green archive movement, as described by Georgina Robinson, would placedegrowth and sustainability frameworks at the centre of archival practice.

2. Jo Walton highlighted the foundational question of what we should keep as a society. ‘Good enough’ preservation means considering not only whether everything should be archived, but whether all current archival material should be retained. Winn 2020 describes archiving in the Anthropocene as a practice of ‘intentional degrowth’. There was agreement that archives are high on the list of things to preserve in any environmentally induced system change, but Walton emphasised that conversations of this kind need to be extended to include key stakeholders such as environmental activists and representatives of climate vulnerable communities, e.g. in Small Island Developing States. Enaiê Azambuja similarly focused on the importance of Indigenous knowledge and archives. Communication and consultation should be extended so that participatory decision-making empowers the public and includes marginalised voices. Capstick highlighted the role of non-dominant languages, multilingualism and language ideologies in de-centring decision-making that includes marginalised voices (Capstick 2020).

3. While the uncritical use of technology and computational methods for working with archives was identified by many speakers as problematic, not least through potentially unnecessary energy consumption, there is a clear role for technology and design in helping to monitor and reduce the environmental impact of archival conservation and preservation. Georgina Robinson highlighted the importance of sustainable design, the decarbonising of historic buildings and the implementation of low energy environments. Pedro Maximo Rocha described work at the National Archives to use digital twins to plan and explore environmental monitoring of archival storage. It is, however, important to acknowledge the huge variation in practice and resources across the archival sector.

4. Many speakers identified the need for urgent action, even if only on a small and local scale. As Georgina Robinson noted, climate action is existentially important for archives because without it there will be no future for which to conserve the records of human activity. Environmental sustainability can also facilitate economic sustainability. There are clear practical and financial reasons for intervening early, in that inaction now will lead to more costly preservation requirements in later years.

5. A common theme of the workshop was the need for community building and knowledge sharing, in order to amplify local action and initiatives, learn from good practice within and between sectors and avoid reinventing the wheel. Examples of this kind of knowledge sharing are the Archives and Records Association’s Environmental Sustainability Group (ESG), which develops tools for members and shares case studies and analysis; and the Places, Plants and People Archives Network, which brings together people interested in documenting social and cultural perspectives on plants and the environment, in identifying collecting gaps, preservation, cataloguing, digitisation, digital archives, disaster planning and accessibility. Andy Cummins spoke about a different kind of knowledge sharing, through the documentation and reuse of open-source software. This holds the promise of more sustainable ways of working, but it requires people to reach out and communicate beyond their usual circles of collaboration.

6. Beyond informal knowledge sharing, many speakers emphasised the importance of training for archivists. Examples range from the planned training in carbon literacy to be delivered by the ESG to the training of experts in protecting biodiversity offered by the Royal Botanic Gardens at Kew.

7. A number of speakers highlighted the challenges of making collections accessible in a sustainable, equitable way. Discussion also focused on the tensions between the desire of cultural heritage institutions to streamline digital services and publish high quality archival and collections images and the concern to minimise the environmental impact of digital provision. Minimal computing approaches and the publication of lower-resolution images by default would require significant engagement with users to manage expectations and gain support for a change of digital direction. How can archives most effectively communicate with users to explain the multiple costs associated with building and maintaining digital infrastructure? During discussion, it was noted that there may be accessibility gains from adopting more lightweight computational approaches, as collections will be more open to people who rely, for example, on mobile technology or limited internet access. The provision of better metadata would help to make search more efficient, but this is also not without financial cost.

One of the break-out groups proposed the idea of ‘slow archiving’ in relation to digital archives, which would involve slower retrieval times for digital data, removing the expectation that archival websites would be available 24/7 and being much more mindful of platforms, storage solutions and software adopted. It was noted, however, that users would have to be ready for changes of this kind and would need to opt in rather than have a ‘reduced’ experience forced upon them.

8. There is a requirement for archives to develop resilience, with long-term disaster planning for real rather than hypothetical risks. Georgina Robinson noted that 98.8% of archives in the US are likely to be affected by at least one climate risk by the year 2100 (Mazurczyk et al. 2018), while other parts of the world are already experiencing archival loss.

9. The role of archives in preserving information about climate change, with potential to influence future policy and practice, was evidenced in several presentations. Arlene Crampsie, for example, discussed an interdisciplinary project on ‘Irish droughts: environmental and cultural memories of a neglected hazard’, which drew on archival sources to explore drought in an Irish context from the early medieval period to the present. The project relied on the exceptional diversity of the archival record, from personal diaries to newspapers and folklore, underscoring the challenges of deciding what should and should not be kept (see above). Analysing archival material at scale, however, requires digitisation and computation, the environmental impact of which needs to be assessed. Andy Cummins described a project to publish online the huge collections of the Natural History Museum of Denmark, with a view to advancing ‘scientific understanding of the natural world to help citizens make knowledge-based decisions for a sustainable future’. Finally, Enaiê Azambuja spoke about the value of intangible archives and oral histories, and specifically the correlation between linguistic and environmental diversity, for example in the Amazon region. How can these living archives be preserved when recording and digitisation bring with them the potential for exploitation?

10. One of the three National Archives case studies, presented by Kaja Marczewska also addressed the value of archives as records of climate and environmental change, and the challenges of surfacing climate data from heterogeneous and distributed archives and collections. A collaborative project on ‘Curating crises: the past as a key to improving the stewardship of hazard knowledges for the future’ drew heavily on photographic collections to study historical representations of landscape, the impact of economic development on landscape and the history of farming in the Caribbean region. This was an important reminder that environmental history is not just recorded in textual sources, but in maps, drawings, photographs and oral testimonies.

11. The final National Archives case study of the day brought together the two themes of exploring archives to understand climate change and the environmental impact of the computational approaches required to preserve and analyse digital data at scale. Mark Bell described the richness of the UK Government Web Archive for recent histories of environmental and climate change, noting that the earliest website to be captured in the archive is that of the Environment Agency (1996). The carbon footprint of the archive is, however, significant and the team are working to reduce it through improving processes, reducing duplication of information, etc. In subsequent discussion, it was noted that financial costs can come into conflict with environmental costs: it is ‘cheaper’ to duplicate material during a web crawl than to deduplicate in order to reduce storage and processing.

Recent developments in AI are likely to change expectations about what can be done with digital archives, but the Large Language Models on which generative AI is based have a huge environmental impact. AI has enormous potential for unlocking digital archives, but choosing what to do - and perhaps more importantly what not to do - will be challenging.

12. The difficulties of combining commercial and non-commercial services and aligning motivations was raised by many delegates during the day. The challenges here ranged from the problem of extracting information about the environmental impact of commercial cloud services to the inability to exchange knowledge effectively between the two sectors. Networks and communities of interest do not often include representatives from both the commercial and non-commercial sectors and they do not tend to interact in the same spaces. It can be very difficult for archives to identify suppliers who are environmentally friendly and will work with them on a sustainable long-term basis.

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## Recommendations and actions

A key aim of the workshop was to develop a local hub to discuss the challenges within this space. It also aimed to generate a list of actions that can be taken to develop and sustain a multidisciplinary conversation on archives and the environment in the UK. The report is an outcome of the workshop and is open to everyone for comments and additions via the OSF platform (<https://osf.io/7tnxs/>).

1. It is recommended that an annual ‘Archives and the environment’ event should be convened, either online or in person, to help build community and facilitate knowledge exchange.
2. It is recommended that, in order to sustain momentum between annual events, an online ‘Archives and the Environment’ reading group should be organised, with an accompanying public Zotero library.
3. It is recommended that a digital toolkit should be developed for archivists and archival researchers to introduce and explain environmentally sustainable tools and practices. The [Digital Humanities Climate Coalition Toolkit](https://sas-dhrh.github.io/dhcc-toolkit/#:~:text=The%20Digital%20Humanities%20Climate%20Coalition,such%20as%20travel%20and%20advocacy.) provides one possible model of a community-generated and maintained resource.
4. It is recommended that a scoping study should be undertaken to identify archival collections in the UK concerned with environmental histories. It was clear from discussions at the workshop that information about environmental change is present in a vast range of archives, so this would necessarily only be a first step.
5. It is recommended that workshop attendees should be encouraged to connect with the Digital Humanities Climate Coalition Community Interest Group (CIG), which is a Community Interest Group of the UK-Ireland Digital Humanities Association. Contact: cdcs@ed.ac.uk.
6. It is recommended that a small working group should be convened to explore the ideas of ‘slow archiving’ and ‘good enough’ conservation/preservation, with a view to developing a research grant proposal.

## List of participants

Organisers

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