




Sustainability in Library Collection Development Introducing a Green Audit Template

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Résumé de l'article

Le thème de la durabilité suscite de l'intérêt dans de nombreuses sphères contemporaines. En tant que partenaires de l'écosystème de l'édition, les bibliothèques universitaires sont impliquées dans les efforts visant à rendre le contenu qui soutient l'enseignement et la recherche plus équitable et durable. Cet article étudie le lien entre les pratiques des éditeurs académiques et les objectifs de durabilité des bibliothèques universitaires liés à la gestion des collections, à travers le prisme d'un audit écologique doté d'une rubrique personnalisée pour faciliter l'évaluation des pratiques vertes des éditeurs. L'équipe de recherche a évalué les pratiques environnementales, l'impact actuel et les engagements futurs des éditeurs, avec un résultat attendu de réduction de l'empreinte carbone de leur bibliothèque et de promotion de pratiques de collecte durables. Les conclusions sont tirées d'un audit de 16 éditeurs académiques internationaux qui a analysé des éléments matériels ainsi que des considérations relatives au transport et à l'infrastructure. Les résultats de l'audit révèlent une image inégale de l'industrie, principalement en raison des niveaux de financement et de la capacité de recrutement.



Sustainability in Library Collection Development: Introducing a Green Audit Template

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ABSTRACT

The topic of sustainability generates interest in many contemporary spheres. As partners in the publishing ecosystem, academic libraries are implicated in the push to make the content that supports teaching and research more equitable and sustainable. This paper examines the relationship between the practices of academic publishers and the sustainability goals of academic libraries related to collection management, through the lens of a Green Audit featuring a customized rubric to facilitate the assessment of the green practices of publishers. The research team assessed the environmental practices, current impact, and future commitments of publishers, with an anticipated outcome of reducing their library's carbon footprint and advancing sustainable collection practices. Findings are drawn from an audit of 16 international academic publishers that examined material elements as well as transportation and infrastructure considerations. Audit

results reveal an uneven picture of the industry, owing primarily to funding levels and staffing capacity.

Keywords: *academic librarianship · collection development · environmental sustainability · publishing · sustainability*

RÉSUMÉ

Le thème de la durabilité suscite de l'intérêt dans de nombreuses sphères contemporaines. En tant que partenaires de l'écosystème de l'édition, les bibliothèques universitaires sont impliquées dans les efforts visant à rendre le contenu qui soutient l'enseignement et la recherche plus équitable et durable. Cet article étudie le lien entre les pratiques des éditeurs académiques et les objectifs de durabilité des bibliothèques universitaires liés à la gestion des collections, à travers le prisme d'un audit écologique doté d'une rubrique personnalisée pour faciliter l'évaluation des pratiques vertes des éditeurs. L'équipe de recherche a évalué les pratiques environnementales, l'impact actuel et les engagements futurs des éditeurs, avec un résultat attendu de réduction de l'empreinte carbone de leur bibliothèque et de promotion de pratiques de collecte durables. Les conclusions sont tirées d'un audit de 16 éditeurs académiques internationaux qui a analysé des éléments matériels ainsi que des considérations relatives au transport et à l'infrastructure. Les résultats de l'audit révèlent une image inégale de l'industrie, principalement en raison des niveaux de financement et de la capacité de recrutement.

Mots-clés : *bibliothéconomie universitaire · développement de collections · durabilité · durabilité environnementale · édition*

THE call for greater social justice, including sustainability, is an insistent one, and universities around the world are responding. In 1987, the United Nations Brundtland Commission defined sustainability as: “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations 2024). The American Library Association (ALA) later established three dynamics of sustainable communities: economy, ecology and equity (American Library Association 2024). In Canada, Western University strives to “discover, develop, and advocate for approaches to make our world more sustainable” (Western University 2021, 23). The research in this paper uses these definitions of sustainability, including the broader dynamics of economy, ecology, and equity (also known as the three E's) as factors influencing sustainability and building sustainable societies.

Within Western Libraries, a research team of five librarians investigated sustainability in collections management through an initiative called the Green Audit Project. This research is driven by a gap in the literature relating to the topic of sustainability and its value in library collections management. An initial investigation of the literature revealed no widespread discussion of what our research

team identified as a timely and important subject. Given the tremendous amount of financial and staffing resources invested in collections management practice, the team identified a valuable opportunity to investigate specific publisher behaviours related to sustainability.

Academic libraries are familiar with environmental sustainability and stewardship since they actively collect a broad variety of content in various formats to help inform and support research and teaching in the field. Increasingly, libraries are reviewing their own practices and impacts, often investing in energy-efficient buildings and infrastructure, as well as waste reduction and diversion programs. Other library initiatives include Open Access (OA) publishing, print-on-demand, digital and e-preferred programs, and collaborative collecting, all of which have the potential to impact environmental sustainability by reducing demand for physical copies and lowering transportation-related emissions and associated environmental impacts. Aligned with these current efforts, the Western Libraries research team adapted the concept of a green audit to examine the environmental impact of each stage of book production, in combination with the American Library Association's three dynamics of sustainable communities framework—economy, ecology, and equity (ALA 2024), and dynamics of sustainable communities framework—economy, ecology and equity (United Nations 2024). This paper examines our findings: identifying the sustainability practices of 16 academic publishers, as described on their public websites. This research seeks to determine the nature of sustainable partnership opportunities at the intersection of library and publisher practices and anticipates that the completed research will lead to increased attention, transparency, and accountability on the part of both groups.

Literature Review

There were several challenges with conducting a search for environmental sustainability in academic collections. As noted by other scholars, the term “sustainability” is used in multiple contexts, leading to unrelated articles included in the results (Meschede and Henkel 2019). Additionally, only one article (Connell 2010) was identified relating specifically to environmental sustainability in collection development. Therefore, systematic literature reviews examining sustainability as a topic in library and information science (LIS) were used to inform our present study. We conducted a comprehensive search across the major library and information science databases LISTA, Library Literature, and LISA, as well as interdisciplinary databases Scopus and Web of Science. Articles retrieved used the search terms “academic libraries,” “collection development,” “sustainability,” “environmental sustainability,” and “green libraries.” Initial searches also included the terms

“publisher” and “publishing” to account for the assessment of publisher practices but yielded no relevant results.

The consensus among scholars suggests a surprising lack of articles published in LIS research on sustainability, given its growing importance as a global issue (Fedorowicz-Kruszewska 2022, 2023; Meschede & Henkel 2019). Within this already small body of literature, very little of it specifically addresses environmental sustainability in collection development and management. Bibliometrics studies such as those conducted by Fedorowicz-Kruszewska (2022) and Meschede and Henkel (2019) track trends in publication history, noting different peaks from the 1990s to the 2020s. Fedorowicz-Kruszewska states that there are two major periods of publications relating to sustainability in libraries: the first wave between 1991 and 2006, and a second wave between 2007 and 2020. Conversely, Meschede and Henkel identify peaks in 2010 and 2016, although the latter is attributed to the creation of the UN SDGs in 2015.

Several large-scale literature reviews summarize trends and ongoing sustainability challenges in academic libraries. Fedorowicz-Kruszewska (2021) identifies collections as one of eight major themes in library sustainability literature; however, the discussion was limited to developing collections on sustainability, not sustainable practices within collections. Meschede and Henkel (2019) investigate the extent to which LIS scholars have published about sustainable development and sustainability. Their study found that the main topics concerning sustainability in libraries and archives are green buildings, information dissemination, education, and supporting the UN SDGs. In a similar literature review, Kamińska et al. (2022) investigate sustainability through the lens of the triple bottom line and identify six broad areas of research within sustainability in libraries: buildings, information and ICT, collections, education, culture, and other. Their discussion further breaks down collections into the broad research areas of collection creation, storage, and management. Two literature reviews specifically investigate challenges and barriers libraries encounter when considering the adoption of sustainable practices. Khalid et al. (2021) identify challenges libraries face regarding sustainability and note that major challenges include a general lack of sustainable strategies, no sustainability curriculum in LIS education, and the ongoing environmental impact of maintaining library operations and services. Further, physical infrastructure is often outdated, and energy outputs can be difficult to curb. In terms of collections, the authors note a lack of sustainable collection policies further hinders sustainable development in libraries. Fedorowicz-Kruszewska (2023) also dives into barriers to developing and implementing sustainable practices in libraries. These challenges consist of ambiguous terminology, a lack of guidelines and evaluation criteria for assessing

libraries, librarian's knowledge about environmental education, tools at the national level to evaluate SDGs, and few environmental topics in LIS courses.

The prevailing articles on sustainability in collections appear to be two articles by Connell (2010), and Jankowska and Marcum (2010). The Connell (2010) article deals specifically with environmentally sustainable collection practices with considerations on how to make libraries greener through collections decisions. Connell's methodology looks at three factors: buying books on green themes, deselection in terms of how to best reuse and recycle, and format selection. Jankowska and Marcum (2010) also emphasized the need to investigate sustainable strategies in collection decisions. Since 2010, there have been few articles that touch on sustainable collections outside of developing collections on sustainable topics.

Since the focus of this article is on print materials, format selection is important to consider, as both print and electronic resources have different methods of production and ways that they are used. Connell (2010) emphasizes the importance of selecting a resource format "that honors the green dictum to reduce the carbon footprint an institution makes" (1). Although the author states that print collections are perhaps the greener option, scholars are divided on the topic and there is no consensus. Conversely, Chowdhury (2012) suggests that moving from print to digital would reduce a significant amount of carbon emissions, although notes the need to further develop methodologies for accurately calculating these emissions (503). A literature review by Kang et al. (2021) considers the carbon footprints of reading e-books versus print books and concludes that reading e-books is not inherently greener than reading print, despite the commonly held belief. For e-books, environmental impact largely depends on user behaviour (time spent reading) and the reading device. The bulk of the impact for print books comes from upfront production and transportation costs, whereas the impact of e-books comes from the manufacturing of reading devices and their use. Both print and e-book production, distribution, and use have various aspects to consider, and it is often difficult to assess their impact holistically.

This article seeks to posit an evaluative rubric for use in collection development decisions around sustainability. By using a well-honed rubric, collection librarians can examine and track commitments by publishers towards meaningful sustainability practices, over the complete life cycle of book production. Through the establishment of a rubric, this research fills a gap identified by other studies that state the lack of evaluative methods is one of the barriers to developing greener libraries (Meschede and Henkel 2019; Fedorowicz-Kruszewska 2023). Additionally, although not a comprehensive list, this study provides a broad overview of academic publishers' sustainability practices.

Methodology

Developing the Rubric

We began developing criteria for the Green Audit based on the seventeen UN SDGs and the commitment of publishers who signed onto the SDG Publishers Compact, an agreement designed to inspire action on the SDGs among publishers by 2030. As of November 2023, there are 329 signatories, including many of the largest academic book publishers (United Nations 2024). The Compact was launched at the Frankfurt Bookfair in 2020, with the intention of being an active venue for sharing progress and goals. Through this compact, publishers are encouraged to publicly report the progress towards their commitments on their websites.

The research team analyzed self-reporting practices of several of Western Libraries' top print publishers, as determined by print book acquisition spending. By selecting publishers based on print spend, we can attach a dollar amount to how much carbon was used in the books we've purchased by calculating print books purchased multiplied by an average carbon dioxide equivalent. The team initially found it difficult to organize or compare the commitments and progress of most publishers accurately. To overcome this challenge, we drafted a single-point rubric with the understanding that an additional column can be added for each subsequent audit of that publisher to show progress over time. We chose this type of rubric to allow for more flexibility in assessing criteria, and publisher-specific feedback than a rubric with a larger scale (McDonnell 2024). The goal of the rubric design is not to compare and grade publishers, but rather to organize and provide a mechanism for tracking progress to achieving stated goals and targets. We chose this type of rubric because we found it necessary to retain flexibility in assessing criteria. The goal of the rubric design is not to compare and grade publishers, but rather to organize and provide a mechanism for tracking progress to achieving stated goals and targets.

To develop the rubric further, we shared an initial version via a [project website](#) and presented our findings at the 2022 Ontario Library Association Super Conference, to boost knowledge synthesis and gain feedback for design and criteria optimization. In our presentation, we partnered with the academic divisions of two major publishers: Taylor & Francis and Oxford University Press. Both publishers were included in a consultative role to further develop the rubric. These two publishers were selected because our preliminary findings identified them as global leaders in helping realize the goals of the UN SDG Publishers Compact. In May 2023, the Green Audit project was a recipient of a Canadian Social Sciences & Humanities Research Council Explore Grant at Western University.

Executing the Green Audit

Research team members selected multiple publishers to audit, and each publisher was assessed independently by at least two members, followed by a reconciliation. Publishers were selected based on the amount of book and looseleaf acquisition spending at Western Libraries, in descending order. A total of 16 publishers were assessed, representing various international and national sectors. A listing of publishers reviewed can be found in Appendix 1. Publishers Taylor & Francis and Oxford University Press were removed from our findings to avoid bias, as they were development partners in designing the audit template. The research team concluded the audit after the first 16 publishers, as we discovered a trend where smaller publishers were found to not report information that met the criteria of the audit. Publisher imprints were initially excluded but could be the subject of future investigation. Research team members relied exclusively on publicly available reports on publisher websites. The research team considered providing publishers an opportunity to receive and respond to the results of their audit but decided this strategy would significantly delay the exploratory research results, and reporting should be publicly available to best comply with the Compact.

The format of the rubric is inspired by life cycle assessment (LCA) methodology. LCA is a well-established product-related assessment tool that evaluates “environmental impacts of a product or a service throughout its life cycle” (Ness et al. 2007, 503). This involves individually evaluating a product during the four stages of its life: raw materials, production, use, and final disposal. The American Library Association’s Sustainability Round Table has created two traditional rubrics with a modified LCA methodology for libraries and vendors to evaluate the sustainability of their “swag” (American Library Association Sustainability Round Table, “Sustainable Swag Self-Evaluation for Library Workers”; American Library Association Sustainability Round Table, “Sustainable Swag Self Evaluation for Vendors”). The high-level categories are:

- i) Availability of information
- ii) Commitments and compliance
- iii) Materials
- iv) Transportation
- v) Infrastructure

When evaluating publishers, the publisher’s website was investigated; the research team reviewed webpages specifically on sustainability, corporate responsibility, environment, about us, policies, and annual reports as available. Our ability to audit publishers was wholly dependent on what publishers made publicly accessible.

Findings

The research team's findings are a result of our Green Audit of 16 international publishers selected based on Western Libraries' print spend. Our findings represent a summary of trends found among all publishers rather than identifying major differences between publishers. We understand that not all publishers are equal, and some may not have the capacity, whether in terms of funding or staffing, to make significant changes to their processes. Some publishers may also be in the process of attaining some of these goals.

Geographic Differences

Many countries have mandated Environment, Sustainability, Governance (ESG) reporting for large, government-owned companies with significant output, and/or listed companies in the last decade. Each country or region has created individual policies for public ESG disclosure. However, the need for an international standard was raised at the November 2021 United Nations Climate Change Conference (COP26). The International Sustainability Standards Board (ISSB) was created to fill this role. The ISSB released its first two International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards in 2023 with implementation planned for the 2024 reporting period. With new international standards being released, and assuming more are forthcoming, some countries are updating their current policies or mandating these baseline reporting standards for almost all publicly listed companies. The ISSB offers scalability and assistance for small companies to aid in their annual disclosures. The United Kingdom and European Union enacted mandatory ESG disclosure for in-scope companies for at least two years, while Canada and the United States are setting up mandated disclosure in 2024.

Of the publishers included in our sample, government-driven mandatory disclosures were key to whether a publisher reported their activities and commitments or not. 100% of non-North American-owned publishers disclosed their climate-change initiatives and risks, while 66% of North American companies voluntarily disclosed recent initiatives and risks. The United Kingdom requires that overseas-owned companies with UK offices of a certain size must disclose. Our research team noticed one American publisher who maintained a UK office that did not disclose on their American website, but did meet the basic requirements for disclosure on their UK website.

Availability of information

The availability of information on sustainability and commitments was heavily influenced by the geographic location of the head office of the publishing house, as indicated by 100% of the UK and EU publishers having at least one webpage on their sustainability commitments and initiatives. 31% of the total publishers did not have any information, and one publisher had outdated information from 2011. 37% of total publishers have a single person or committees who have sustainability roles within their organizations. 44% of total publishers have publicly available annual reports, which provide a very handy go-to for researching a company's sustainability efforts and progress. These 44% were a mix of UK, Canadian, EU, and US publishers. However, of these publishers with available annual reports, about half have shown evidence of progress toward their commitments. We suspect this number will grow with time as government policies are mandated for public companies.

Commitments and compliance

Our review of 16 publishers' websites revealed that 38% of publishers have made a commitment to reaching net zero emissions. Frequently used language in this category includes terms such as Science-Based Target Initiatives (SBTIs), the 2015 Paris Agreement, and the Paris Agreement's 1.5C degree stretch target. One publisher follows SBTIs but does not have a net zero goal; instead, they aim to reduce emissions by 46% by the year 2030. Across publishers' websites, target years for achieving net zero ranged from 2040 to 2050. Some publishers are already carbon neutral but are working with SBTIs to become net zero. It is likely that all these places use offsets or something similar to achieve a net zero target.

Only two publishers reported having achieved the ISO 14001 certification standard, which is the international standard for environmental management systems (EMS) and the most widely used EMS in the world. It is the principal management system standard which specifies the requirements for EMS formation and maintenance. The ISO 14001 standard helps to control a company's environmental aspects, reduce impacts, and ensure legal compliance. Studies show that as much as 70% of total office waste is recyclable; however, according to National Quality Assurance (NQA) only 7.5% reaches a recycling facility (National Quality Assurance 2024).

38% of publishers audited provided varying degrees of information on their carbon emissions. Statements ranged in detail, from carbon neutrality to specific emissions across scopes 1, 2, and 3. The latter measure classifies greenhouse gas emissions based on their origin. Scope 1 covers direct emissions from owned or controlled sources; scope 2 includes indirect emissions from purchased energy;

and scope 3 involves all other indirect emissions from the value chain, such as from suppliers and product use. One publisher only mentioned compensating for carbon dioxide usage, while a second alluded to general reduction and using green energy. A third mentioned scopes 1-3, the Paris Agreement, SBTIs, and general reduction of emissions. A fourth publisher included robust documentation, including the fact that their SBTIs included a commitment to a 72% reduction in all energy-related emissions by 2030, and from there to reach net zero by 2048. A fifth publisher included the information that renewable power contributed to the reduction in scopes 1-3 and employee travel reductions. A sixth publisher observed they have reduced their scope 1 and 2 location-based carbon emissions by 74% since 2010. They noted further that they compensated for emissions in scopes 1-3 by purchasing offsets in 2022, with investments in REDD+ forestry projects in Kenya and Indonesia and a soil sequestration project in the United Kingdom. One publisher included a report on emissions, scopes, and third-party assessment, and noted that as of 2022, they are a CarbonNeutral® certified company across their global operations, in accordance with the CarbonNeutral Protocol. A final publisher provided specific numbers in tonnes and mentioned carbon neutrality.

Only two publishers directly referred to the term “biodiversity” in the websites audited, although one publisher did mention biodiversity in their media section and explicitly referred to biodiversity conservation, species, and wildlife. The other publisher chose to offset emissions through carefully selected forestry projects, stating they felt supporting biodiverse woodland best reflects their approach of using only responsibly sourced forestry products in their supply chain. This publisher also supports CommuniTree, a project in Nicaragua that is certified by Plan Vivo.

Ten out of 16 publishers, or 63%, are signatories of the UN SDGs global compact. The UN SDGs are sometimes mentioned alongside the UN decade of action. In several cases, the publishers’ parent company signed on and indicated all subsidiaries follow the same policies. Some publishers specify which UN SDGs they are targeting. When publishers lack publicly available information on their own sustainable practices but highlight UN SDG-published content, it gives the impression that they view their role as more of an educator than practitioners of sustainability. Many of the smaller publishers, such as university presses are not signatories; however, this lack of participation is explained by a smaller footprint and reduced capacity.

Materials

One surprising finding was the non-disclosure of paper sourcing. Just over half (54%) of the global publishers surveyed discussed sustainable paper, supplier sourcing, or strategies for reducing print. Many of the 54% mentioned various programs and

initiatives for sourcing sustainable paper in their print content, including reviewing the Publishers' Database for Responsible Environmental Paper Sourcing for paper grading, or certification from various sustainable paper programs, including the Forestry Stewardship Council (FSC), the Programme for the Endorsement of Forest Certification, or the Sustainable Forestry Initiative. Other paper-related initiatives include: Forest Sourcing through The Book Chain Project, which assesses forest sources of paper; using lightweight papers; reducing trim size; suggesting e-publishing over print; using Print on Demand; and engaging in smaller print runs. Further, these publishers require any supply chain providers to also adapt their processes to be sustainable. By the next audit cycle, we hope to see a reduction in the number of publishers who do not disclose paper sourcing, and we hope to see greater emphasis on the importance of the paper supply chain and distribution.

The 'Materials' section in the rubric includes the following subcategories: recycling processes, editions, Open Educational Resources, servers/data side (sustainable fuels), sustainable ink/glue, and e-waste. We found that 25% of publishers reported on how they dispose of their e-waste; 25% of publishers listed changes between editions; and 25% of publishers described their recycling processes. To clarify, it was not the same 4 publishers disclosing these sub-categories. Very few publishers are currently reporting on OER, servers, or sustainable ink and glue. Sustainable glue has become an issue regarding the ability to recycle print content, it is our understanding that the adhesive used to bind print books is non-recyclable, we hope to learn more about recycling processes in future research. We are currently unsure if sustainable ink will remain in our rubric because we have not encountered any publishers who have mentioned sustainable ink; this is another facet that will require more research.

Transportation

Meeting with current, former, and potential customers is a key task for many publishers. Maintaining relationships through in-person meetings, pre-COVID, meant that sales representatives were expected to travel across their sector to visit and attend conferences and meetings. In a post-COVID world these in-person, on-campus meetings may not be as necessary as previously thought when online videoconferencing tools may provide a similar level of relationship maintenance. Perhaps due to the cost-savings noted during COVID from a decrease in business travel, mixed with policies to be more sustainable, many publishers have committed to exchanging current travel processes for new sustainable travel options. Of the 16 publishers audited, one publisher is 'taking steps' to provide sustainable travel options but did not provide any further details, and 50% of publishers audited did not

relay information on changes to current travel processes. 43.75% of publishers listed ways they are creating sustainable travel practices, such as reducing non-essential business travel, encouraging public transit and train travel, adding secure bike storage areas and electric car charging stations to office buildings, and decreasing car fleet emissions by moving to more fuel-efficient vehicles.

Under the 'Transportation' section of the rubric, the research team reviewed websites for information on warehouse shipping practices for print content, warehouse locations, and shipping packaging materials. Of these three categories, warehouse locations (where warehouses are physically located and the distance that items need to be shipped) had the least amount of information, with only 12.5% of publishers listing any information about warehouse locations. There was more information available for warehouse shipping practices and shipping packaging materials: 31.25% of publishers provided information on both topics. We found that the reduction of print, either by moving to more digital content or by using Print on Demand, and minimizing plastics in shipping and printing materials were the main efforts to reduce shipping and emissions related to plastics, with one publisher using sea-over-air shipping and another publisher asking suppliers to make reductions on their end.

Infrastructure

The 'Infrastructure' section in the rubric includes two subsections: buildings and other partnerships (third-party relationships). Buildings is a broad category with several potential ways to enable sustainability efforts such as: the use of alternative energy sources like solar or wind energy; if the company has downsized due to new work-from-home policies instituted during the COVID-19 restrictions thus saving energy and resources; in-office policies regarding paper use, recycling, and providing reusable kitchenware instead of offering plastic single-use products; using energy-efficient lights; applying for green tariffs, renewable energy credits, energy attribute certificates, or purchasing carbon credits. Carbon credits are often highly criticized since companies can buy carbon-neutral status without changing processes to reduce carbon emissions. 43.75% of the audited publishers acknowledged some level of sustainability efforts in their offices, with a majority using 100% renewable energy, reducing in-office printing, office recycling initiatives, consolidating offices, and having fewer staff physically on site which enabled a reduction in energy use. One publisher has achieved the Blue Standard for office space which is an office that operates sustainably by eliminating single-use plastics, having a plastic checklist, having a waste management plan, ensuring that an office's janitorial practices, purchasing policies, and green cleaning are all sustainable, and being a paperless

organization. Several of these publishers were limited in their ability to make significant changes due to leasing office space instead of owning the real estate, so carbon credits, funding reforestation projects, and purchasing their way to carbon neutrality are the only feasible course of action in some cases. The second subsection, 'other partnerships', is also a very broad category as there are many charities and organizations that help companies realize their sustainability goals, such as the Publishers Association (PA) Sustainability Task Force which discusses sustainability strategies, or the Carbon Disclosure Project which educates and grades companies and other entities on environmental impacts, to name two of many. It might be beneficial to the rubric to disperse this category among the other sections to allow a more focused audit based on the type of aid or charitable environmental-based work enabled by the partnership.

Discussion

Our findings demonstrate a blend of progress and promise on the part of academic publishers in sustainability goals. A key finding of our research is that government-driven mandatory disclosures were imperative to whether a publisher reported their activities and commitments or not. These disclosures impacted the results of the Green Audit as companies based in the UK and EU, where ESG reporting is mandatory, had a higher rate of reporting whereas the availability of information from companies based in North America depended on voluntary disclosure. The research team found that larger publishers are significantly further ahead in making commitments towards sustainable publishing practices, whereas smaller publishers were found to have little if any documented goals or actions. We hope that this paper helps smaller publishers to identify what publishing practices are relevant and desired by academic libraries, and where their larger peers have modelled successes so far.

Given that the rubric follows a lifecycle approach, it lends itself to be adapted and customized by other academic institutions of different sizes, public libraries, or any institution that acquires significant amounts of print. The Green Audit rubric would greatly benefit from a comparable e-waste metric, relevant to both the academic and public library settings. A gap in this research is related to recycling and print book waste, especially in the public library sphere, where multiple copies are more frequent and long-term preservation of books is less common. Further research into practices in book recycling would benefit both academic and public libraries, particularly related to the efficacy of shipping print books overseas (e.g. Better World Books). Similarly, the concept of 'greenwashing' emerged during the dissemination of this research and could be a direction for further exploration. While the goal of

the audit and this research is not meant to be punitive, publishers should be held accountable for the commitments and values they espouse. Future research could also be directed towards evolving the Green Audit rubric into a common reporting framework. This could prove especially fruitful for the smaller publishers identified as not having the same capacity or resources to host dedicated webpages or staffed positions.

Although the rubric was designed to holistically assess publisher practices, there is a dearth of information on electronic infrastructure with few publishers reporting information on servers and data centres, especially how it pertains to e-books. This is somewhat understandable since the bulk of the environmental impact lies on the end user's device; however, when e-books are presented as the more environmentally friendly option, the data should be available for comparison. If we are to consider format selection, as Connell (2010) and Kang et al. (2021) suggest, to engage in sustainable collection practices, there remain significant barriers to doing so, due to an overall lack of consensus, as well as limited information provided by publishers.

Further research is required to deepen our understanding of sustainability in collection development and address gaps in the literature. As noted previously, the smaller publishers audited had a limited amount of information available on their website, likely due to having less capacity and fewer resources compared to their larger competitors. Research should be done to determine how libraries and smaller publishers can work together to implement sustainable practices as they are numerous and important to the scholarly landscape. Further, research surveying or interviewing publishers to better understand the industry perspective would be beneficial, as not all green initiatives are published on their respective websites.

Conclusion

While the developed Green Audit template may not serve as the ultimate tool for tracking publisher sustainability goals and progress, we hope it will serve as a foundation for such discussions. The Green Audit demonstrates a concrete approach whereby academic library practitioners can engage with environmental sustainability. Libraries play a crucial role in supporting research and instruction by purchasing and distributing content in a variety of formats. While we do not always have the opportunity to choose the most sustainable resource type, we do have the ability and responsibility to make educated and sustainable choices when it comes to our practices and purchases. The benefit of conducting a Green Audit of publishers is that libraries can begin to gain a deeper understanding of their practices, especially around print, which will guide libraries' discussions with publishers about their own sustainability practices. Through the mechanism of a Green Audit, this research team is taking a proactive approach to sustainability in collections management

by assessing the environmental practices, impact, and future commitments of our publishing partners in the hopes of positively impacting the collections landscape and enabling other libraries to do the same. While we still have a way to go and more avenues to research, we hope that these first steps will prove beneficial to sustainable collection practices.

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Appendix 1: List of Audited Publishers

Bloomsbury

Brill

Cambridge University Press

Edward Elgar

Emerald Publishing

Emond

Harvard University Press

LexisNexis

McGill University Press

Princeton University Press

Rowman & Littlefield

Springer

Thomson Reuters

University of Toronto Press

Wiley

Yale University Press

Oxford University Press (removed from findings)

Taylor & Francis (removed from findings)

Appendix 2: Green Audit Template

Type/Category	Criteria	Findings [Year]
Availability of information	Webpage on sustainability	
	Sustainability roles	
Commitments and Compliance	Net Zero	
	Certifications	
	Carbon emissions	
	Biodiversity commitments	
	UN Sustainable Development Goals	
Materials	Sustainable paper	
	Recycling processes	
	Editions	
	Open Educational Resources	
	Servers / Data side (sustainable fuels)	
	Sustainable ink / glue	
	E-waste	
Transportation	Sustainable travel	
	Warehouse – shipping practices (for print)	
	Warehouse - location	
	Shipping packaging materials	
Infrastructure	Buildings	
	Other partnerships (third-party relationships)	
Total Score		