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Conference Abstract

How Open Science Builds Enduring Value for Biodiversity Research

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Abstract

Research exists to make an impact. It is not necessarily aimed at profit, but seeks to meet societal, environmental and/or cultural needs, while also generating and sharing new knowledge. Sometimes this knowledge has a direct application; other times, it serves curiosity. This blend gives research its vitality.

Yet research is typically packaged into short-lived projects. They begin with a question or funding call and end when resources run out. The tension is clear: the specific questions may be time-bound, but the value of the knowledge, data and tools is not. Too often, outputs lose visibility and become hard to reuse. There is also a tension between internal project coherence and broader alignment with institutional strategies, collaborators and policy frameworks. Trade-offs are inevitable between speed and sustainability, innovation and standardisation, and serving current needs versus preparing for future ones. This interplay between the ephemeral and the enduring is central to the sustainability and value of research.

Our reflections draw on several recent projects. The Belgian TrIAS project (2017–2021) built open data pipelines for science and policy and designed its workflows with reuse in mind. These were not one-off solutions but adaptable foundations. Later projects such as

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B-Cubed (2023–2026), LIFE RIPARIAS (2021–2026), GuardIAS (2025–2027) and OneSTOP (2025–2028) build on this base (Katsanevakis 2024, Groom 2025). While their objectives differ, all shared a concern for durability. They reuse methods, extend infrastructures, and align with open standards. Durability is never accidental. It requires researchers to consider sustainability from the outset. Datasets are published under CC0, software under open-source licenses, and publications under CC-BY.

To endure, research outputs must be embedded in open, stable and widely used infrastructures, such as GBIF, Zenodo, GitHub, Wikidata. These platforms increase visibility and allow others to build upon prior work. Standards are equally essential. The frameworks developed by Biodiversity Information Standards (TDWG) and others enable interoperability, so data from different sources can be combined, compared and reused (Hardisty and Roberts 2013).

We've learned to design workflows for reuse. For example, the WiSDM species distribution modelling workflow developed in TrIAS has been picked up in OneSTOP and GuardIAS (Davis et al. 2024). This reuse saves effort but also builds continuity as each project leaves a trail others can follow.

Furthermore, when tools are co-developed, they are more likely to be maintained and adapted. Communities of practice allow knowledge and lessons to flow from one project into the next. Some of the most lasting outcomes of research are the relationships it creates. Durability requires deliberate choices. Openness, interoperability and relevance ensure that research lives beyond its funding cycle. Aligning with standards, designing for reuse, and investing in shared infrastructure all help secure this. Communication is part of this, including clear documentation, identifiers, and presentation or contextualization that make outputs understandable and trustworthy.

The real lesson is that long-term impact doesn't come from isolated brilliance, but from embedded, reusable, shareable work. Funders, institutions and researchers all have a role to play in making this shift, and if we succeed, even short projects can leave lasting legacies.

Keywords

data reuse, research infrastructure, project sustainability, science policy alignment

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Conflicts of interest

The authors have declared that no competing interests exist.

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