Towards a strategic approach to mobilising UK museum biodiversity data: Workshop Report

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Agenda, talks and follow up survey at: https://www.idigbio.org/wiki/index.php/UK_Strategy_Workshop

Overview

On 8th March 2018, a range of stakeholders met to discuss the potential of a collaborative approach to releasing UK museum biodiversity data for global research and local engagement. This is the 'what, when, where, who collected' data attached to many biological and palaeontological specimens. Whilst it has huge potential to help answer big questions facing humanity today, only a handful of UK organisations are currently mobilising it to research aggregator databases.

The workshop was part of the 'South West Area Natural Sciences (SWANS)' project, funded by the John Ellerman Foundation and led by Bristol Culture with regional partners. Working to support natural sciences curatorial skills in the face of ongoing subject specialist loss, the project recognised digitisation as having major untapped potential for cross-regional working. Further, operating in the context of a UK-wide strategy could increase impact and reach, bring wider expertise, and develop a powerful shared narrative connecting UK collections large to small.

Providing UK expertise, a global perspective, and valuable learning from a collaborative approach to digitising natural sciences collections in the US, the Natural History Museum London and iDigBio worked with us to co-deliver.

We aimed to synthesise ideas to help inform **initial direction of travel** for a UK collaboration. Taking the format of expert talks followed by attendee working groups, we considered **three key areas**:

1) What is the <u>vision</u> and the <u>story</u>?

Invited speakers put forward some powerful ideas:

- *"Natural Sciences collections have an immediacy or currency that is unique and presents a precious opportunity to engage with and debate global issues with our audiences."* **Vic Harding, South West Museums Development**

- *"Big datasets are opening up whole new paradigms of research"*; *"We can only do this together – the full picture is held by us collectively."* **Vince Smith, Natural History Museum**

- *"Multiple collections form a deeper and broader national collection; digitisation and aggregation increase understanding and accessibility."* **Sam Rowlands, Arts Council England**

- *"These issues are global, the effort needs to be global."*; *"...answering critical questions about the environment, human health, biosecurity, commerce, biosciences."* **Deb Paul, iDigBio**

- *"How to do better in hard times: not by doing more, but by doing things with more relevance and impact"*; *"We must link to wider agendas such as the United Nations'* [*Sustainable Development Goals*](#)*"* **Henry McGhie, Manchester Museum**

- *"If we don't do it, are we compliant with our core mission?"*; *"New technology has created scientific opportunity to release latent value."* **Helen Hardy, Natural History Museum**

- *"We are facing big challenges, but together we are stronger. The time is now for the UK to make a unique contribution to the global digitisation effort."* **Isla Gladstone, Bristol Culture**

Kathryn Jeffs, BBC Natural History Producer for Planet Earth II, shared her key to engaging wider audiences through storytelling. Don't just tell people information, tap into their emotion, their imagination. Your story needs a hero, the hero needs to have a problem, and there needs to be a solution. The hero could be as wide as humanity, the problem climate change, and the solution lies in these collections. Kathryn also highlighted the importance of visual interpretations or analogies, pulling on filmic references such as 'The Lost Ark' or 'The Matrix'.

Using a reductive process the group developed a draft vision from an initial version: *"To use digitisation as a tool to release the potential knowledge held in natural science collections across the British Isles to support the understanding and conservation of the world's natural environments and their human populations."*

... to: *"To unlock or unite natural sciences collections for the benefit of Earth and its inhabitants"*

... with key words and mission phrases such as: accessibility, connectedness, reinventing the museum, saving the natural world, delivering a new form of science.

Visual interpretations included: an individual with a spotlight studying their collection, expanding out to turn the lights on in hundreds of similar settings; the Earth at night seen from space, and the transition into sunlight; a forest layer connected from the canopy to the roots: every part is crucial, chopping off a branch as a collections is lost; an underground mycelium, interconnected living network; the exploded diagram of an engine – united the parts are greater than their sum.

2) What are the benefits and possible models of collaboration?

There is no requirement for UK natural sciences collections to collaborate in mobilising our biodiversity data. A number of UK collections already achieve this on their own, for example the Natural History Museum London, [Royal Botanic Gardens Edinburgh](#) and [Tullie House Museum](#). However, there was universal support for an active collaboration, with participants identifying **benefits** in:

- **Impact:** broader reach (geographic, audiences, stakeholders), bigger data, wider outcomes

- **Advocacy:** a shared narrative of value for UK collections, common goals

- **Shared benefits:** local / regional collections are part of a UK and global narrative, and in turn provide unique opportunities for local engagement

- **Sharing expertise:** from external stakeholders, to group problem solving and lessons learned, to skills sharing and supporting non-specialists

- **Sharing contacts and networks:** bringing in experts and audiences beyond natural sciences

- **A joint infrastructure:** including shared data platforms, technology and equipment

- **Limited duplication**

- **Wider funding opportunities:** collective buying power, developing proposals targeted at various sources, sharing strategies

- **Improved sustainability**

The **model** we choose to implement a UK collaborative project also has the potential to address key issues facing the museum sector and support wider agendas whilst achieving a top-level goal.

Head of Bristol Culture, Laura Pye, shared her view that the museum sector is in crisis: we must find new models to address **loss of regional curatorial expertise,** vast backlogs in **collections management** and lack of workforce **diversity**, and create stronger narratives of **community relevance**.

A successful collaboration must understand **effective approaches** to engaging with **diverse UK collections**. Information on one region was provided by Isla Gladstone and Vic Harding via the SWANS project 2015-18. Here specialist capacity is low but an essential route to cross-regional organisations. For over 60 organisations holding natural sciences material there are just seven regional specialists. No collections systematically export biodiversity data; 44% of wider sector collections are 'not used' and 26% self-defined as at risk. The project recognised **people** and **skills** as key to access, targeting support to organisations with or without in house specialists instead of via collection size, and using the **existing infrastructures** of the regional museums development network.

Existing worldwide collaborations provide valuable case studies. The US is seven years into collaborative initiative 'Advancing Digitisation of Biodiversity Collections'. Here proposals from the collections community are funded by the National Science Foundation along **research-linked** Thematic Collections Networks (TCNs), for example 'Lichens and Bryophytes' (environmental change). 336 institutions are currently engaged via 20 TCNs. Deb Paul from **central co-ordination programme** iDigBio, who enable digitisation via **training**, **standards**, a **data portal** and connecting to research and **learning**, shared key to success: **community building**, a **community driven** process, and **stakeholder focus**. The initiative has built a wealth of resources that can be used in the UK: we are not starting from square one. The EU's DiSSCo initiative, 'Distributed System of Scientific Collections' is a proposed pan-European research infrastructure.

Crowdsourcing elements of the digitisation process, or **citizen science,** represents an opportunity for public engagement but also for connecting external experts such as observer networks to collections with limited resource. Lucy Robinson shared information on existing platforms, highlighting citizen science requires significant investment but brings valuable new audiences. New technical advances such as image recognition and OCR bring further opportunities.

The National Biodiversity Network (NBN) is the UK's largest partnership for nature, aiming to create a picture of UK biodiversity. Jo Judge outlined the opportunity to connect to this data **infrastructure** which currently holds very little museum specimen data.

Synthesising the above and bringing their own expertise, workshop participants identified an initial direction for a collaborative model:

- Community / peer led, with a 'neutral' co-ordinating body

- Taking account of wider collaborator needs and existing infrastructure; ensuring benefits for all involved; training to involve workshops, kits and skills sharing

- Thinking beyond the sector, e.g. universities and record centres; linking to open data agendas

- Topic-based but not for just one type of need or outcome, e.g. not all science-led; how will projects be selected – what's the review process, will there be criteria?

- Considering a phased approach and audience participation

- Data harvesting / publishing at local, regional, national and international levels (collections across the UK hold material from around the world)

- Quick wins, what we can do in a couple of years?

- Learn from existing models, e.g. the GB Mollusca Types project

3) Who are the key audiences and stakeholders in order of priority? What activities are required to meet their needs?

Attendees identified three audience categories:

1) Internal: e.g. museum managers, staff and volunteers

2) Project infrastructure: e.g. funders, other museums, government, local authorities, software

3) Data users: Researchers (science and non-science); higher education, schools; wildlife recorders, enthusiasts, wildlife groups; citizen scientists; local audiences, museum visitors, 'the public'; NGO's; subject specialist networks; artists; media; commercial

Activities required to reach audience groups 1 & 2 included:
- A concise case for support, including analytics data, increasing or deepening audience engagement and case studies of success
- Establishing an advocacy network, identifying shared objectives and building partnership
- Providing capacity, training including to volunteers, and tools such as standardised data and dictionaries and georeferencing tools
- Ensuring future proofed technology and resources

Activities to reach group 3:
- Ensuring data and stories can be found (publicity strategy, good data in correct format, provide APIs, ensure exciting stories and extract these for public consumption)
- Measures of data quality and useful license permissions

Post workshop

Through this report we are sharing our findings more widely, and inviting ideas from a wider group of stakeholders. **We need your input!** To generate a truly collaborative vision that considers needs and opportunities across the UK, we would be grateful for your time in completing two surveys. We are using this approach to avoid duplicating data – **it is important to fill in both surveys** if you would like to contribute:

Survey 1: https://s.surveyplanet.com/S1Q1EWU6M

Survey 2: https://ec.europa.eu/eusurvey/runner/dissco-collect

Survey 2 – Please fill in **Sections A and B ONLY.** All UK information will be collated from DiSSCo to help inform next steps.

1. **Select "non-DiSSCo partner"** from the pull-down list for the first question in section A *(A.1: 'Select the DiSSCo partner you are responding for', 'non-DiSSCo partner' is at the bottom)*
2. For mixed collection institutions**: questions relate to the institution's natural science collections ONLY** *(e.g. B.2. Personnel, Q4 – number of natural sciences curators NOT all subject curators)*
3. If you don't have the precise information requested, **please provide your best estimate**.

About DiSSCo: EU initiative DiSSCo, or Distributed System of Scientific Collections, is: "a new pan-European Research Infrastructure initiative of 21 European countries with a vision to position European natural science collections at the centre of data-driven scientific excellence and innovation in environmental research, climate change, food security, one health and the bioeconomy." http://dissco.eu/

Many thanks to those who participated in the workshop for their input and ideas. A list of attendees is available on the workshop wiki.